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SCRUBTEC 545B / 545BL / 553B /  
553BL / BOOST 5 / 653B / 653BL /  
651BCL / 661BL / 545E / 553E / 653E



**Nilfisk  
ALTO**

*Why Compromise*

ENGLISH

SERVICE MANUAL

9097062000(2)2009-06



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## GENERAL INFORMATION

## GENERAL INFORMATION

## CONVENTIONS

Forward, backward, front, rear, left or right are intended with reference to the operator's position, that is to say in driving position with the hands on the handlebar.

## MACHINE LIFTING

**WARNING!**

*Do not work under the lifted machine without supporting it with safety stands.*

## MACHINE TRANSPORTATION

**WARNING!**

- *Before transporting the machine, make sure that:*
- *All covers are closed.*
- *The ignition key is removed.*
- *The machine is securely fastened to the means of transport.*

## OTHER REFERENCE MANUALS

The following manuals are available at Nilfisk-Advance Literature Service Department:

**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5:** User Manual - Form Number 9097054000

**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5:** Spare Parts List - Form number 9097055000

**SCRUBTEC 653B, 653BL, 651BCL, 661BL:** User Manual - Form Number 9097058000

**SCRUBTEC 653B, 653BL, 651BCL, 661BL:** Spare Parts List - Form number 9097059000

**SCRUBTEC 545E, 553E:** User Manual - Form Number 9097056000

**SCRUBTEC 545E, 553E:** Spare Parts List - Form number 9097057000

**SCRUBTEC 653E:** User Manual - Form Number 9097060000

**SCRUBTEC 653E:** Spare Parts List - Form number 9097061000

- **Assembling Instruction** Hour meter Kit - Form Number 9096952000
- **Assembling Instruction** Extra Pressure Kit - Form Number 909 6759 000
- **Assembling Instruction** Splash Guard Kit - Form Number 909 6745 000
- **Assembling Instruction** Battery charger Kit - Form Number 909 6746 000
- **Assembling Instruction** Chemical Mixing System Kit - Form Number 9097162000

## GENERAL INFORMATION

### SAFETY

The following symbols indicate potentially dangerous situations. Always read this information carefully and take all necessary precautions to safeguard people and property.

### SYMBOLS

**DANGER!**

*It indicates a dangerous situation with risk of death for the operator.*

**WARNING!**

*It indicates a potential risk of injury for people or damage to objects.*

**CAUTION!**

*It indicates a caution related to important or useful functions.  
Pay careful attention to the paragraphs marked by this symbol.*

**NOTE**

*It indicates a remark related to important or useful functions.*

**CONSULTATION**

*It indicates that it is necessary to consult the User Manual before performing any procedure.*

### GENERAL INSTRUCTIONS

Specific warnings and cautions to inform about potential damages to people and machine are shown below.

**DANGER!**

- *This machine must be used by properly trained operators only. Children or disabled people cannot use this machine.*
- *Do not wear jewels when working near electrical components.*
- *Do not work under the lifted machine without supporting it with safety stands.*
- *Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapours: This machine is not suitable for collecting dangerous powders.*

**DANGER! (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)**

- *Before performing any cleaning, maintenance, repair or replacement procedure disconnect the battery connector and remove the ignition key.*
- *Keep the battery far from sparks, flames and incandescent material. During the normal operation explosive gases are released.*
- *Battery charging produces highly explosive hydrogen gas. Keep the tanks lifted during battery charging and perform this operation in well-ventilated areas and away from naked flames.*

**DANGER! (SCRUBTEC 545E, 553E, 653E)**

- *Always disconnect the power supply cable when the machine is not in use, before performing maintenance procedures, before replacing the brush/pad-holder and before opening any access panel.*

## GENERAL INFORMATION

**WARNING!**

- *To avoid any unauthorized use of the machine, remove the ignition key.*
- *Do not leave the machine unattended without being sure that it cannot move independently.*
- *Always protect the machine against the sun, rain and bad weather, both under operation and inactivity condition. Store the machine indoors, in a dry place: This machine must be used in dry conditions, it must not be used or kept outdoors in wet conditions.*
- *Before using the machine, close all doors and/or covers.*
- *Do not allow to be used as a toy. Close attention is necessary when used near children.*
- *Use only as shown in this Manual. Only Nilfisk recommended accessories must be used.*
- *Take all necessary precautions to prevent hair, jewels and loose clothes from being caught by the machine moving parts.*
- *Do not use the machine on slopes with a gradient exceeding the specifications.*
- *Do not use the machine in particularly dusty areas.*
- *While using this machine, take care not to cause damage to people or objects.*
- *Do not bump into shelves or scaffoldings, especially where there is a risk of falling objects.*
- *Do not put any can containing fluids on the machine.*
- *The machine working temperature must be between +32°F and +104°F (0°C and +40°C).*
- *The machine storage temperature must be between +32°F and +104°F (0°C and +40°C).*
- *The humidity must be between 30% and 95%.*
- *When using floor cleaning detergents, follow the instructions on the labels of the detergent bottles.*
- *To handle floor cleaning detergents, wear suitable gloves and protections.*
- *Do not use the machine as a means of transport.*
- *Do not allow the brushes to operate while the machine is stationary to avoid damaging the floor.*
- *In case of fire, use a powder fire extinguisher, not a water one.*
- *Do not tamper with the machine safety guards and follow the ordinary maintenance instructions scrupulously.*
- *Do not allow any object to enter into the openings. Do not use the machine if the openings are clogged. Always keep the openings free from dust, hairs and any other foreign material which could reduce the air flow.*
- *Do not remove or modify the plates affixed to the machine.*
- *This machine cannot be used on roads or public streets.*
- *Pay attention during machine transportation when temperature is below freezing point. The water in the recovery tank or in the hoses could freeze and seriously damage the machine.*
- *Use brushes and pads supplied with the machine and those specified in the User Manual. Using other brushes or pads could reduce safety.*
- *In case of machine malfunctions, ensure that these are not due to lack of maintenance. Otherwise, request assistance from the authorised personnel or from an authorised Service Center.*
- *If parts must be replaced, require ORIGINAL spare parts from a Dealer or Authorised Retailer.*
- *To ensure machine proper and safe operation, the scheduled maintenance shown in the relevant chapter of this Manual, must be performed by the authorised personnel or by an authorised Service Center.*
- *Carefully read all the instructions before performing any maintenance/repair procedure.*
- *Do not wash the machine with direct or pressurised water jets, or with corrosive substances.*
- *The machine must be disposed of properly, because of the presence of toxic-harmful materials (batteries, etc.), which are subject to standards that require disposal in special centres (see the User Manual).*

## GENERAL INFORMATION

**WARNING! (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)**

- Do not pull or carry the machine by the battery charger cable and never use the battery charger cable as a handle. Do not close a door on the battery charger cable, or pull the battery charger cable around sharp edges or corners. Do not run the machine on the battery charger cable.
- Keep the battery charger cable away from heated surfaces.
- Do not charge the batteries if the battery charger cable or the plug are damaged. If the machine is not working as it should, has been damaged, left outdoors or dropped into water, return it to the Service Centre.
- Before using the battery charger, ensure that frequency and voltage values, indicated on the machine serial number plate, match the electrical mains voltage.
- Do not smoke while charging the batteries.
- To reduce the risk of fire, electric shock, or injury, do not leave the machine unattended when it is plugged in. Before performing any maintenance procedure, disconnect the battery charger cable from the electrical mains.

**WARNING! (SCRUBTEC 545E, 553E, 653E)**

- The machine power supply cable is grounded and the relevant plug is grounded too. In case of machine malfunction or breakdown, grounding connection reduces the risk of electric shock.
- The power supply cable plug must be connected to an appropriate outlet, which is grounded according to law in force. Improper connection can cause electric shock.
- Do not tamper with the power supply cable plug. If the power supply cable plug cannot be connected to the outlet, have new grounded outlet installed by a qualified technician, according to the law in force.
- Before connecting the power supply cable to the electrical mains, check that frequency and voltage, shown on the machine serial number plate, match the electrical mains voltage.
- Do not unplug the machine by pulling the supply cable. To unplug, grasp the plug, not the cable.
- Do not handle the plug or the machine with wet hands.
- Turn off all controls before unplugging.
- Regularly check the power supply cable for damages, cuts, cracks and wear. If necessary, replace it.
- If the power supply cable is damaged, contact the Nilfisk Service Center for replacement.
- Do not pull or carry the machine by the power supply cable and never use the power supply cable as a handle. Do not close a door on the power supply cable, or pull the power supply cable around sharp edges or corners. Do not run the machine on the power supply cable.
- The brushes must not come into contact with the power supply cable.
- Keep the power supply cable away from heated surfaces.
- To reduce the risk of fire, electric shock, or injury, do not leave the machine unattended when it is plugged in. Disconnect the machine from the electrical mains when not in use and before performing maintenance procedures.
- If the machine:
  - does not work properly
  - is damaged
  - has water or foam leaks
  - has been left outdoors exposed to bad weather conditions
  - is wet or has been dropped into waterturn it off immediately and contact the Nilfisk Service Center or a qualified technician.

## GENERAL INFORMATION

## TECHNICAL DATA (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5)

Model	SCRUBTEC 545B (1 brush/pad- holder, without drive system)	SCRUBTEC 545BL (1 brush/pad- holder, with drive system)	SCRUBTEC 553B (1 brush/pad- holder, without drive system)	SCRUBTEC 553BL (1 brush/pad- holder, with drive system)	SCRUBTEC BOOST 5 (Vibrator holder, with drive system)
Machine height	1,058.5 mm				
Solution/clean water tank capacity	42 litres				
Recovery water tank capacity	42 litres				
Min/max solution flow without Chemical Mixing System	0 ÷ 1,6 lt/min				
Min/max solution flow with Chemical Mixing System	—	5 litres	—	5 litres	
Chemical Mixing System tank capacity	—	0,4% ÷ 2,5%	—	0,4% ÷ 2,5%	
Chemical Mixing System setting	—	0,4% ÷ 2,5%	—	0,4% ÷ 2,5%	
Solution/clean water autonomy	1,1 lt/min ~ 36 min Media/Average				
Front wheel diameter	200 mm				
Front and rear wheel specific pressure on the floor*	0.9 N/mm² - 3 N/mm²				
Rear wheel diameter	100 mm				
Minimum turning radius	600 mm		650 mm		
Vacuum system motor power	330 W				
Drive system motor power	—	200 W	—	200 W	
Drive speed (variable)	—	0 to 4.5 km/h	—	0 to 4.5 km/h	
Max gradeability	—	16% - 9°	—	16% - 9°	
Working gradeability	2%				
Sound pressure level (at the operator's position) (ISO 11201, ISO 4871) (LpA)	66 dB(A) ± 3dB(A)				
Sound pressure level (to the machine) (ISO 3744, ISO 4871) (LwA)	84 dB(A)				
Vibration level at the operator's arms (ISO 5349-1)	< 2,5 m/s²				
Standard batteries	(2 x 12 V) 95 - 165 Ah@20h				
Standard batteries autonomy	~ 3,2h	~ 2,6h	~ 3,2h	~ 2,6h	~ 2,4h
Battery compartment size (width x length x height)	350 x 350 x 300 mm				
Total consumption in work condition	29 A				
Vacuum system circuit capacity	1,055 mm H <sub>2</sub> O				
Cleaning width	450 mm		530 mm		510 mm
Squeegee width	760 mm				
Machine maximum length	1,190 mm		1,228 mm		
Machine width without squeegee	512 mm		540.8 mm		
Brush diameter	450 mm		530 mm		355 x 508 mm
Deck right/left offset	37,1/- mm		75,9/- mm		83/- mm
Brush distance from the ground (when lifted)	60,1 mm				57 mm
Weight without batteries and with empty tanks	81 kg	96 kg	81 kg	96 kg	92 kg
Maximum weight with batteries and full tanks	213 kg	229 kg	213 kg	229 kg	182 kg
Brush motor power	480 W				560 W
Brush speed	153 rpm				2250 giri/min
Brush/pad-holder pressure with extra-pressure function turned off	19.0 kg		20.5 kg		18 Kg
Brush/pad-holder pressure with extra-pressure function turned on	Optional	29 kg	Optional	30 kg	34 Kg

(\*) Machine test have been performed under the following conditions:

- Battery maximum size
- Brush and squeegee maximum size
- Full clean water tank
- Optional equipment installed
- Wheel weight checked
- Each wheel print checked on cement
- Result expressed as maximum value for both front and rear wheels

## GENERAL INFORMATION

## TECHNICAL DATA (SCRUBTEC 653B, 653BL, 651BCL, 661BL)

General technical data				
Model	SCRUBTEC 653B (1 brush/pad-holder, without drive system)	SCRUBTEC 653BL (1 brush/pad-holder, with drive system)	SCRUBTEC 651BCL (2 cylindrical brushes, with drive system)	SCRUBTEC 661BL (2 brushes/pad-holders, with drive system)
Machine height	1,088 mm			
Solution/clean water tank capacity	55 litres			
Recovery water tank capacity	55 litres			
Min/max solution flow without Chemical Mixing System	0 ÷ 1,6 lt/min			
Min/max solution flow with Chemical Mixing System	-	0 ÷ 1.5 lt/min		
Chemical Mixing System tank capacity	-	5 litres		
Chemical Mixing System setting	-	0,4% ÷ 2,5%		
Solution/clean water autonomy	1,1 lt/min ~ 52 min Media/Average			
Front wheel diameter	250 mm			
Front and rear wheel specific pressure on the floor*	0.8 N/mm² 2.8 N/mm²	0.8 N/mm² - 6.1 N/mm²		
Rear wheel diameter	100 mm			
Minimum turning radius	700 mm			
Vacuum system motor power	330 W			
Drive system motor power	—	200 W		
Drive speed (variable)	—	0 to 5.6 km/h		
Max gradeability	—	16% - 9°		
Working gradeability	2% - 1°			
Sound pressure level (at the operator's position) (ISO 11201, ISO 4871) (LpA)	65.8 dB(A) ± 3dB(A)			
Sound pressure level (to the machine) (ISO 3744, ISO 4871) (LwA)	84 dB(A)			
Vibration level at the operator's arms (ISO 5349-1)	< 2,5 m/s²			
Standard batteries	(2 x 12 V) 95 - 165 Ah@20h			
Standard batteries autonomy	~ 3,2h	~ 2,6h		
Battery compartment size (width x length x height)	350 x 350 x 300 mm			
Total consumption in work condition	29 A			
Vacuum system circuit capacity	1,055 mm H <sub>2</sub> O			

(\*) Machine test have been performed under the following conditions:

- Battery maximum size
- Brush and squeegee maximum size
- Full clean water tank
- Optional equipment installed
- Wheel weight checked
- Each wheel print checked on cement
- Result expressed as maximum value for both front and rear wheels

## GENERAL INFORMATION

## TECHNICAL DATA (SCRUBTEC 653B, 653BL, 651BCL, 661BL) (continues)

Technical data for machines with brush/pad-holder deck			
Model	SCRUBTEC 653B (1 brush/pad-holder, without drive system)	SCRUBTEC 653BL (1 brush/pad-holder, with drive system)	SCRUBTEC 661BL (2 brushes/pad-holders, with drive system)
Cleaning width	530 mm	530 mm	610 mm
Squeegee width	760 mm		810 mm
Machine maximum length	1,323 mm		1,311 mm
Machine width without squeegee	541 mm		646 mm
Brush diameter	530 mm		305 mm
Deck right/left offset	77/- mm		87/80 mm
Brush distance from the ground (when lifted)	59,5 mm		69,5 mm
Weight without batteries and with empty tanks	87 kg	95 kg	
Maximum weight with batteries and full tanks	234 kg	241 kg	
Brush motor power	480 W		350 W
Brush speed	153 rpm		230 rpm
Brush/pad-holder pressure with extra-pressure function turned off	20 kg		
Brush/pad-holder pressure with extra-pressure function turned on	Optional	40 kg	

Technical data for machines with cylindrical brush deck	
Model	SCRUBTEC 651BCL (2 cylindrical brushes, with drive system)
Cleaning width	510 mm
Squeegee width	760 mm
Machine maximum length	1,253 mm
Machine width without squeegee	575.5 mm
Cylindrical brush size (diameter x length)	110 x 485 mm
Deck right/left offset	94/4,5 mm
Brush distance from the ground (when lifted)	39,5 mm
Weight without batteries and with empty tanks	105 kg
Maximum weight with batteries and full tanks	251 kg
Brush motor power	400 W
Cylindrical brush speed	570 rpm
Cylindrical brush pressure	26.5 kg



## GENERAL INFORMATION

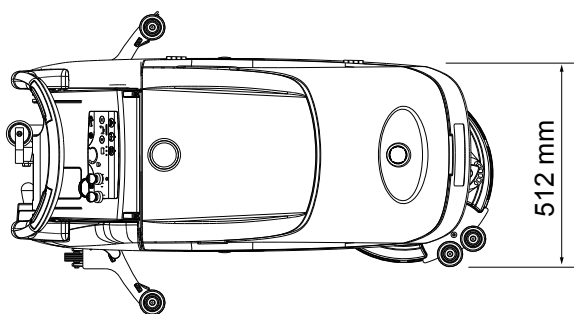
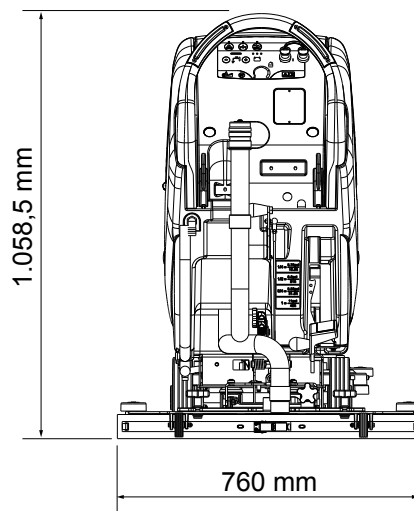
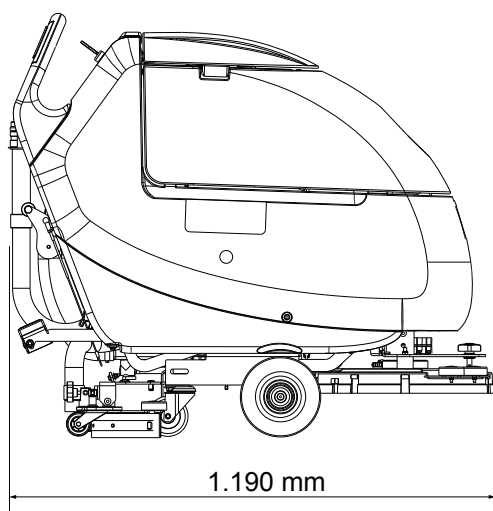
## TECHNICAL DATA (SCRUBTEC 545E, 553E, 653E)

Model	SCRUBTEC 545E (1 brush/pad-holder)	SCRUBTEC 553E (1 brush/pad-holder)	SCRUBTEC 653E (1 brush/pad-holder)
Power supply	230 V, 50-60 Hz		
Machine height	1,058.5 mm		1,088 mm
Solution tank capacity	42 litres		55 litres
Recovery water tank capacity	42 litres		55 litres
Min/max solution flow	0 ÷ 1,6 lt/min		
Solution/clean water autonomy (0.29 gal/min - Media/Average)	~ 36 min		~ 52 min
Front wheel diameter	200 mm		250 mm
Front and rear wheel specific pressure on the floor*	0.7 N/mm² - 3.2 N/mm²		1 N/mm² - 1.2 N/mm²
Rear wheel diameter	100 mm		
Minimum turning radius	600 mm	650 mm	700 mm
Vacuum system motor power	550 W, 50-60 Hz		
Gradeability	2% - 1°		
Sound pressure level (at the operator's position) (ISO 11201, ISO 4871) (LpA)	68 dB(A) ± 3dB(A)		
Sound pressure level (to the machine) (ISO 3744, ISO 4871) (LwA)	84 dB(A)		
Vibration level at the operator's arms (ISO 5349-1)	< 2,5 m/s²		
Total consumption in work condition	6 A (50Hz) - 7 A (60Hz)		
Vacuum system circuit capacity	1,316 mm H <sub>2</sub> O		
Cleaning width	450 mm	530 mm	
Squeegee width	760 mm		
Machine maximum length	1,147 mm	1,185 mm	1,306 mm
Machine width without squeegee	512 mm	541 mm	
Brush diameter	450 mm	530 mm	
Deck right/left offset	37,1/- mm	75,9/- mm	77/- mm
Brush distance from the ground (when lifted)	60,1 mm		59,5 mm
Weight with empty tanks	131 kg		138 kg
Maximum weight with full tanks	173 kg		195 kg
Brush motor power	1,100 W, 50-60 Hz		
Brush speed	150 rpm		
Brush pressure	28.3 kg	30 kg	

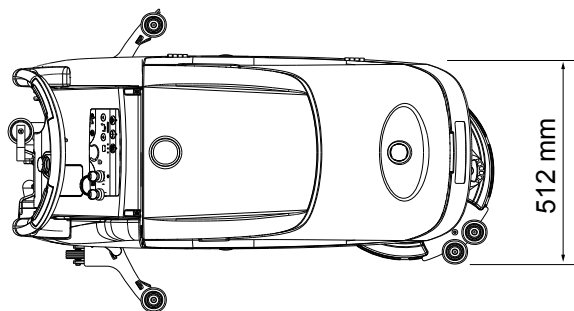
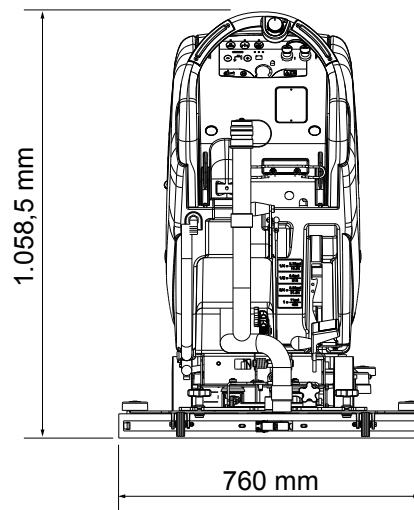
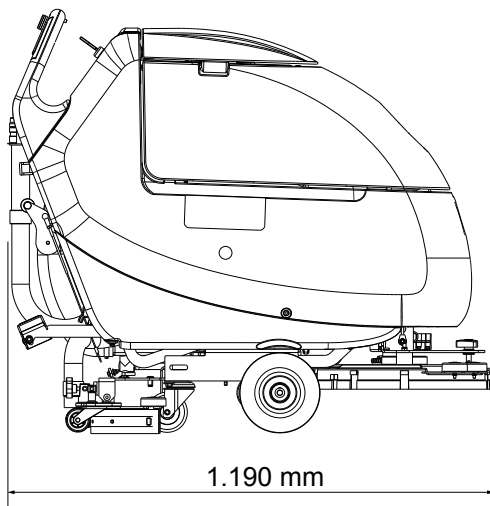
(\*) Machine test have been performed under the following conditions:

- Battery maximum size
- Brush and squeegee maximum size
- Full clean water tank
- Optional equipment installed
- Wheel weight checked
- Each wheel print checked on cement
- Result expressed as maximum value for both front and rear wheels

## DIMENSIONS SCRUBTEC 545B

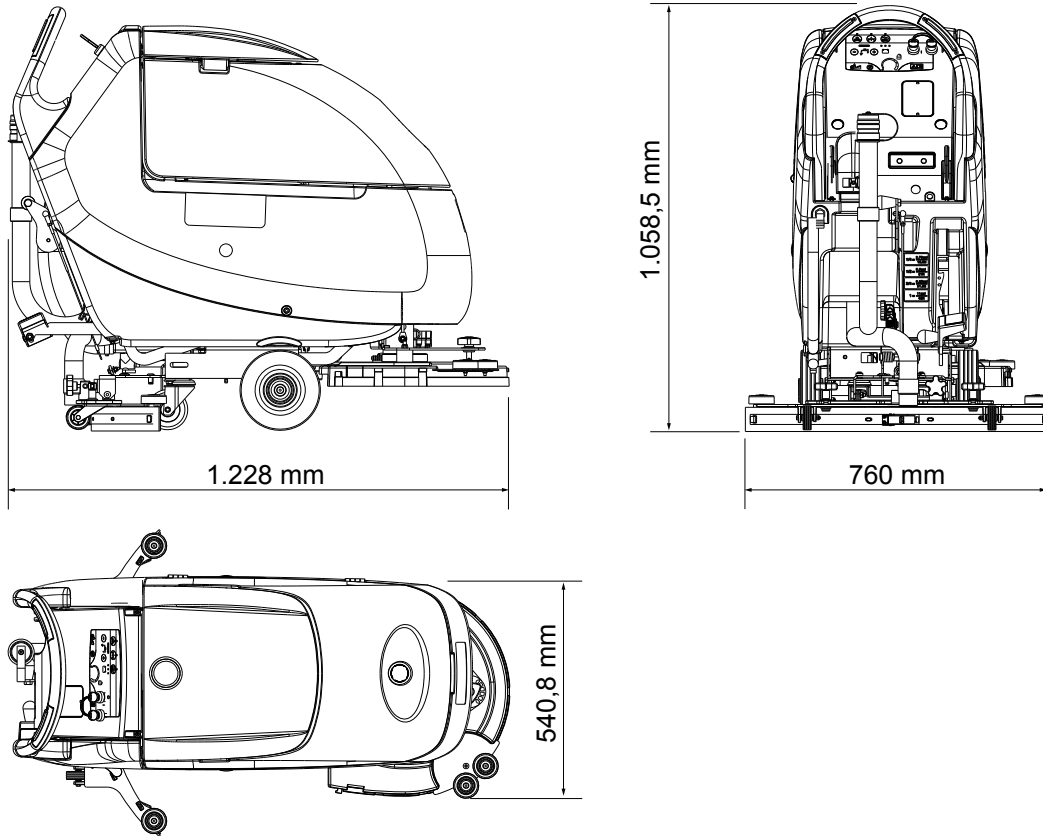


## DIMENSIONS SCRUBTEC 545BL

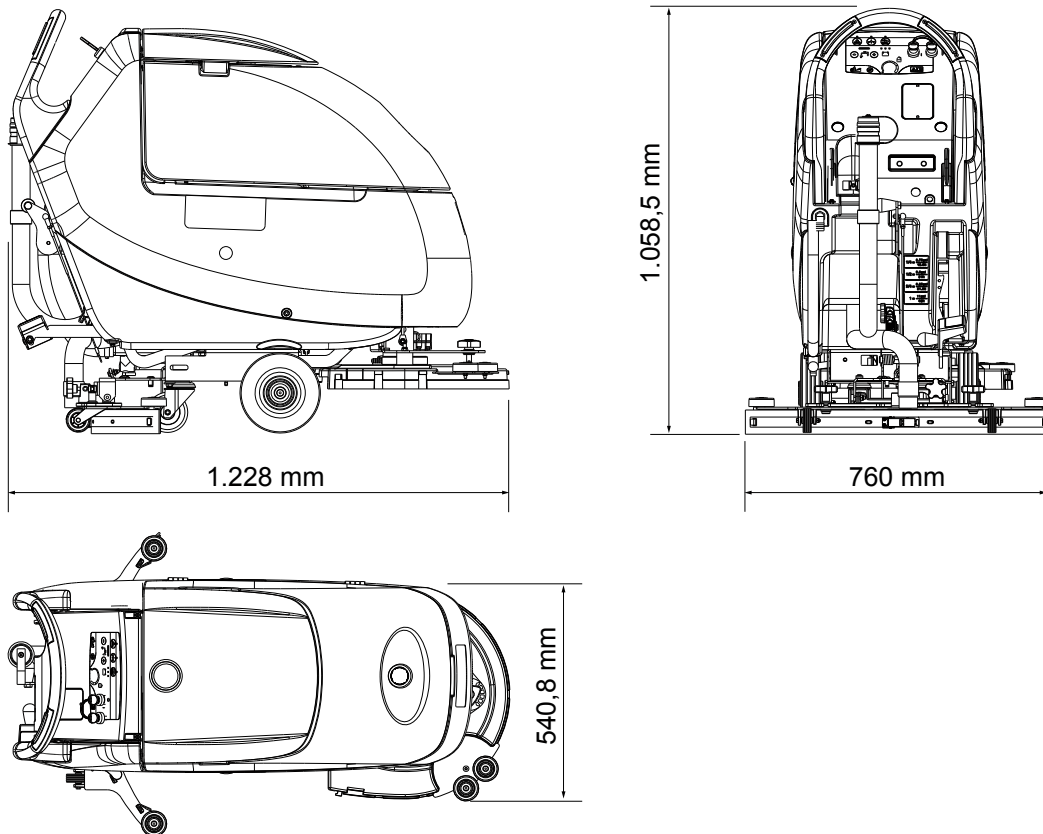


## MAINTENANCE

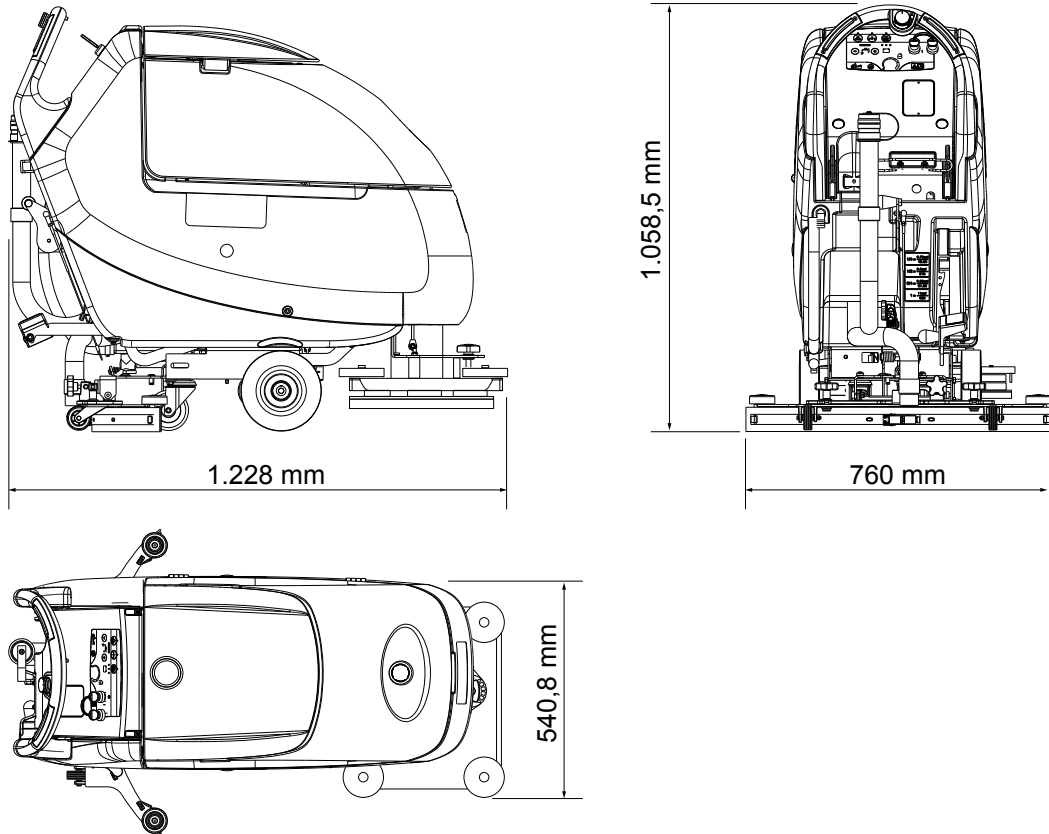
### DIMENSIONS SCRUBTEC 553B



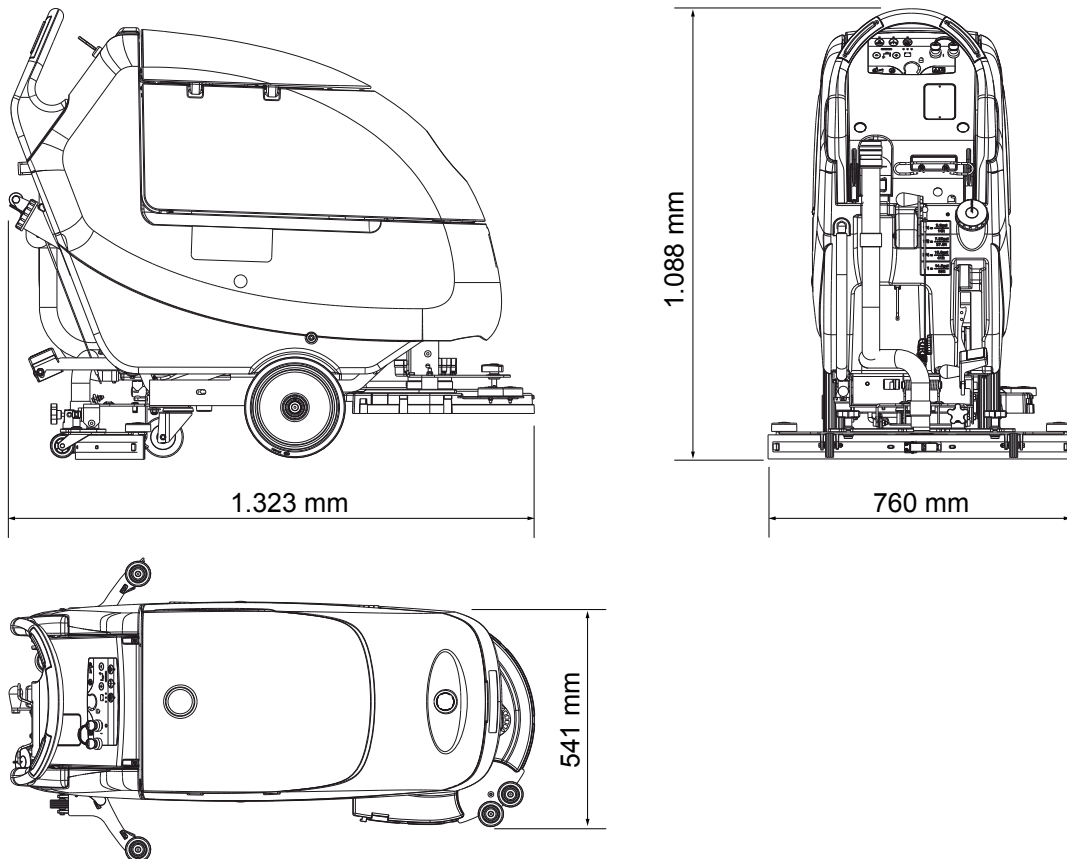
### DIMENSIONS SCRUBTEC 553BL

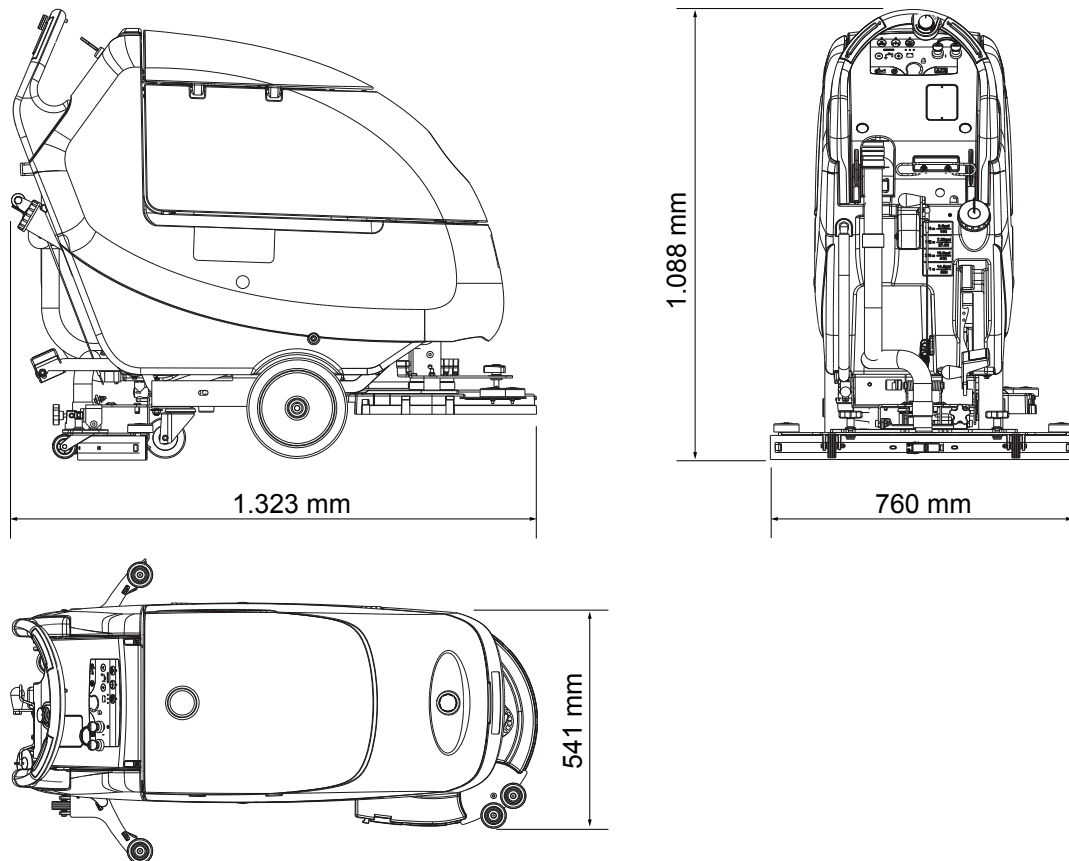
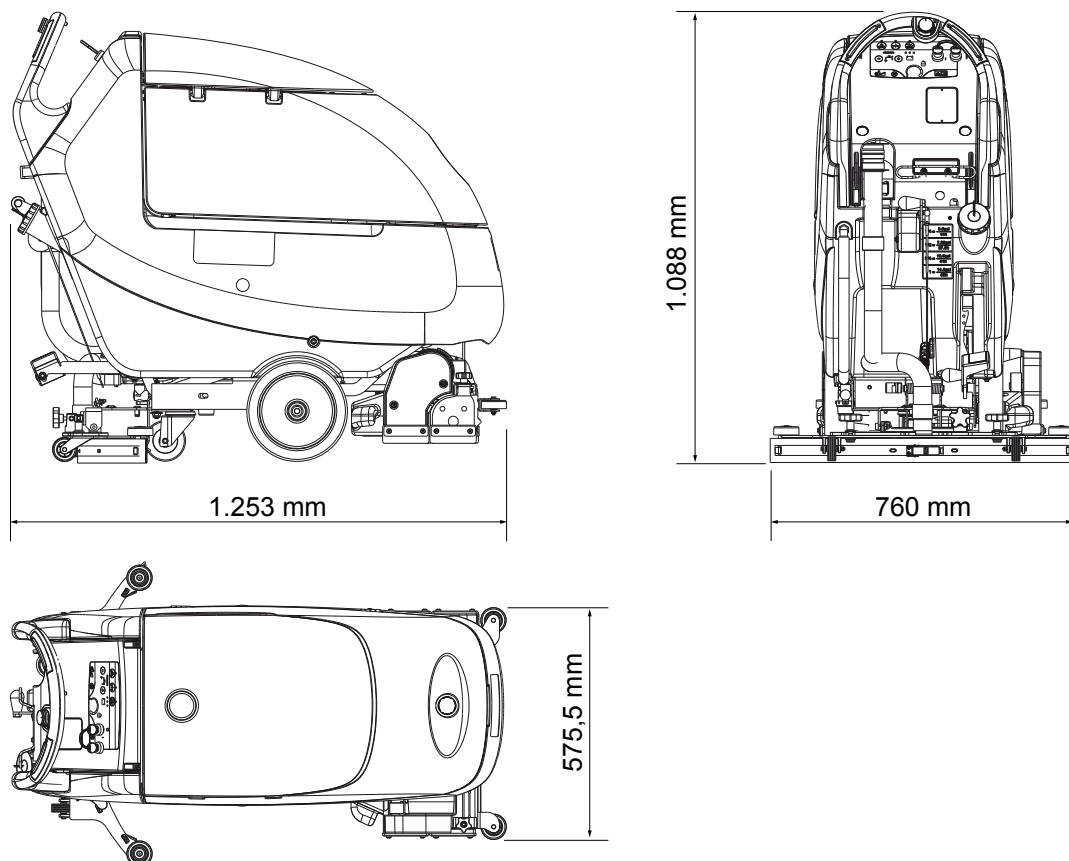


## DIMENSIONS SCRUBTEC BOOST 5

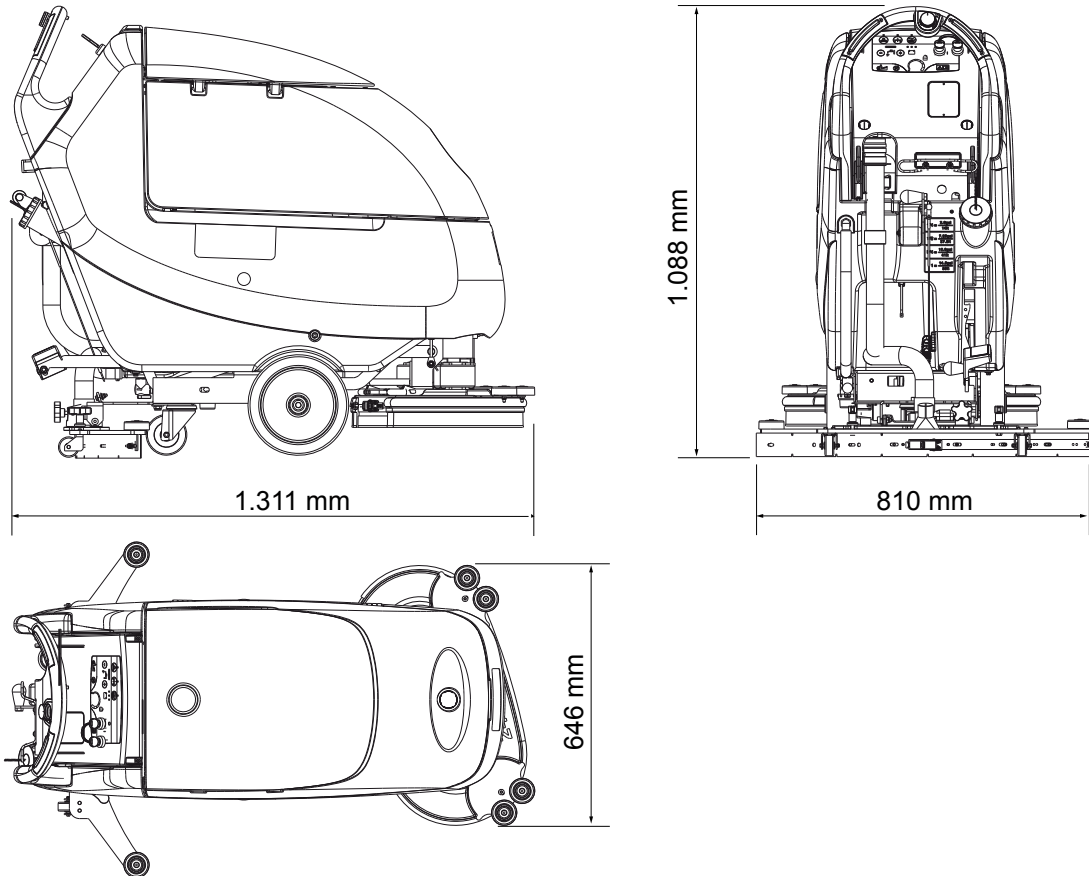


## DIMENSIONS SCRUBTEC 653B

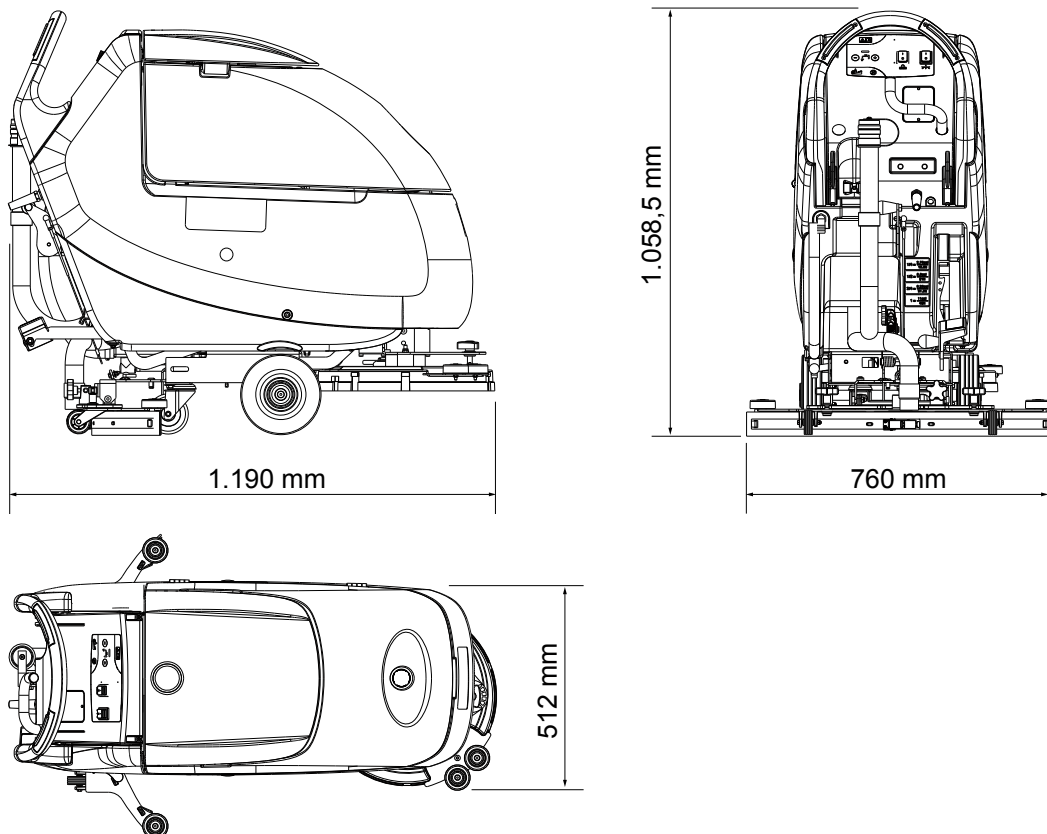


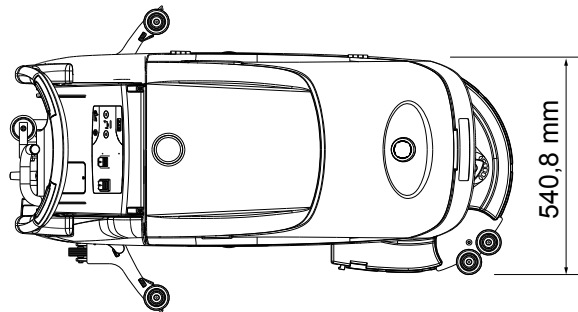
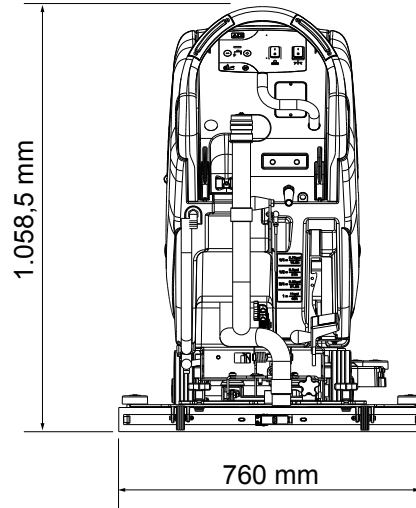
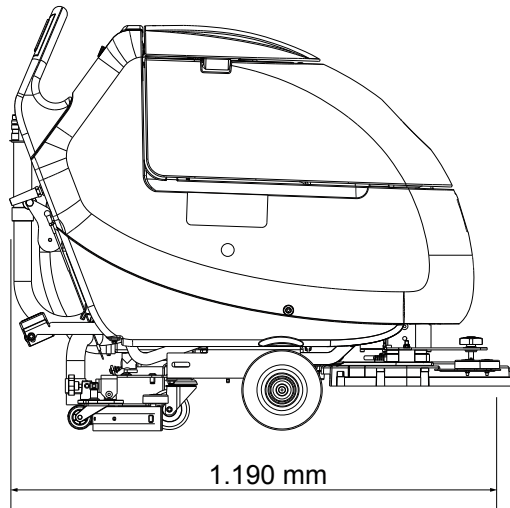
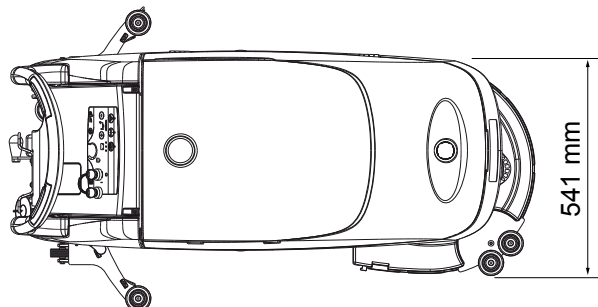
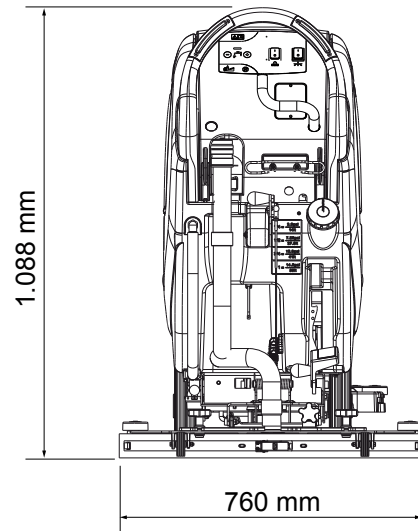
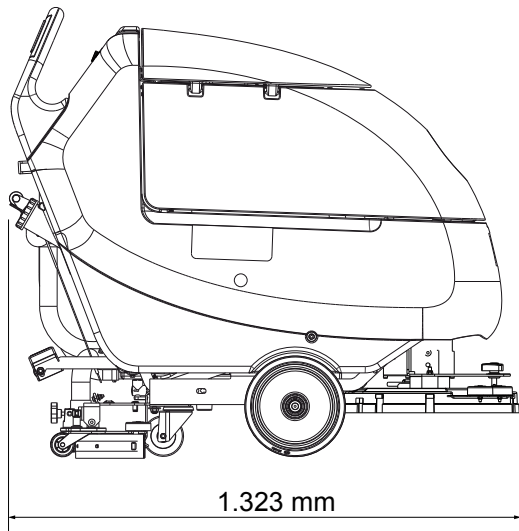
**MAINTENANCE****DIMENSIONS SCRUBTEC 653BL****DIMENSIONS SCRUBTEC 651BCL**

## DIMENSIONS SCRUBTEC 661BL



## DIMENSIONS SCRUBTEC 545E



**MAINTENANCE****DIMENSIONS SCRUBTEC 553E****DIMENSIONS SCRUBTEC 653E**



## MAINTENANCE

## MAINTENANCE

The lifespan of the machine and its maximum operating safety are ensured by correct and regular maintenance.

**WARNING!**

*Read carefully the instructions in the Safety chapter before performing any maintenance procedure.*

The following tables provide the scheduled maintenance. The intervals shown may vary according to particular working conditions, which are to be defined by the person in charge of the maintenance.

For instructions on maintenance procedures, see the following paragraphs.

### SCHEDULED MAINTENANCE TABLE (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)

Procedure	Daily, after using the machine	Weekly	Every six months	Yearly
Battery charging				
Squeegee cleaning				
Brush/pad cleaning				
Tank and vacuum grid with float cleaning, and cover gasket check				
Squeegee blade check and replacement				
Chemical Mixing System cleaning and draining (optional)				
Solution/clean water filter cleaning				
Vacuum system motor filter cleaning				
WET battery fluid level check				
Screw and nut tightening check			(1)	
Brush/pad-holder motor carbon brush check or replacement				
Vacuum system motor carbon brush check or replacement				
Drive system motor carbon brush check or replacement (SCRUBTEC 545BL, 553BL, 653BL, 651BCL, 661BL)				
Vibration-dampers replacement (only for BOOST 5)				

(1) And after the first 8 working hours.

### SCHEDULED MAINTENANCE TABLE (SCRUBTEC 545E, 553E, 653E)

Procedure	Daily, after using the machine	Weekly	Every six months	Yearly
Power supply cable check				
Squeegee cleaning				
Brush/pad cleaning				
Tank and vacuum grid with float cleaning, and cover gasket check				
Squeegee blade check and replacement				
Solution filter cleaning				
Vacuum system motor filter cleaning				
Screw and nut tightening check			(1)	
Brush/pad-holder motor carbon brush check and replacement				
Vacuum system motor carbon brush check or replacement				

(1) And after the first 8 working hours.

## MAINTENANCE

### MACHINE NOMENCLATURE (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5)

Throughout this Manual you will find numbers in brackets – for example: (2). These numbers refer to the components indicated in these two nomenclature pages. Refer to these pages whenever it is required to identify a component mentioned in the text.

- |   |  |
|---|--|
| 1. Control panel  | 51. Solution/clean water filter  |
| 2. Handlebar  | 52. Solution/clean water tap   |
| 3. Brush/forward gear switch (*). Brush switch (***)  | 53. Batteries  |
| 4. Drive speed adjuster (*)   | 54. Battery caps   |
| 5. Battery charger data inspection window (optional)  | 55. Reference table for detergent proportioning (**)                                   |
| 6. Battery charger cable (optional)   | 57. Battery connection diagram   |
| 7. Battery charger cable holder (optional)  | 58. Boost holder   |
| 8. Recovery water drain hose plug   | 59. Pad boost holder   |
| 9. Reverse gear switch  | 71. Brush/pad-holder switch  |
| 10. Squeegee lifting/lowering lever   | 72. Brush/pad-holder switch warning light  |
| 11. Deck lifting/lowering pedal   | 73. Vacuum system switch   |
| 11a. Pedal position when deck is lifted   | 74. Vacuum system switch warning light   |
| 11b. Pedal position when deck is lowered  | 75. Brush/pad-holder release switch  |
| 11c. Extra pressure activation (optional)   | 76. Brush/pad-holder release switch warning light                                      |
| 12. Battery connector (red) (this connector also works as EMERGENCY push-button, to stop immediately all functions) | 77. Detergent flow control knob (**)   |
| 13. Rear steering wheels  | 78. Reverse gear switch (*)  |
| 14. Front wheels on fixed axle. Driving wheels (*)  | 79. Hour counter (optional)  |
| 15. Squeegee vacuum hose  | 80. Ignition key (0 - I)   |
| 16. Recovery water drain hose   | 81. Battery charge indicator   |
| 17. Solution/clean water drain and level check hose   | 81a. Charged battery warning light (green)   |
| 18. Brush/pad-holder deck   | 81b. Semi-discharged battery warning light (yellow)                                    |
| 19. Brush/pad-holder  | 81c. Discharged battery warning light (red)  |
| 20. Solution/clean water tank   | 82. Washing water flow control switches  |
| 21. Recovery water tank   | 82a. Flow increase switch  |
| 22. Recovery water tank cover   | 82b. Flow decrease switch  |
| 23. Can holder  | 82c. Washing water flow indicator  |
| 24. Solenoid valve  | 83. Brush/forward gear switch (*). Brush switch (***)                                  |
| 25. Squeegee  | 84. Speed adjuster (*)   |
| 26. Squeegee mounting handwheels  | 90. Electronic battery charger   |
| 27. Squeegee adjusting handwheel  | 91. Lead (WET) or gel (GEL) battery selector   |
| 28. Machine straight forward movement adjusting handwheel   | 92. Green warning light (the battery charger is on and batteries are charged)          |
| 29. Machine forward speed adjusting handwheel (***)   | 93. Yellow warning light (the battery charger is on and batteries are semi-discharged) |
| 30. Recovery water tank cover (opened)  | 94. Red warning light (the battery charger is on and it is charging the batteries)     |
| 31. Tank cover gasket   |  |
| 32. Cover movable retaining plate   |  |
| 33. Cover fixed retaining plate (do not remove!)  |  |
| 34. Serial number plate/technical data/conformity certification   |  |
| 35. Squeegee bumper wheels  |  |
| 36. Vacuum grid with automatic shut-off float   |  |
| 37. Solution filler neck  |  |
| 38. Filter  |  |
| 39. Deck bumper wheels  |  |
| 40. Recovery water tank (opened)  |  |
| 41. Detergent/clean water hose  |  |
| 42. Tank safety cable   |  |
| 43. Vacuum system motor cover   |  |
| 44. Vacuum system motor sound-deadening filter  |  |
| 45. Detergent tank (**)   |  |
| 46. Detergent tank plug (**)  |  |
| 47. Detergent tank handle (**)  |  |
| 48. Detergent feed hose (**)  |  |
| 49. Detergent pump (**)   |  |
| 50. Detergent tank - pump connecting hose (**)  |  |

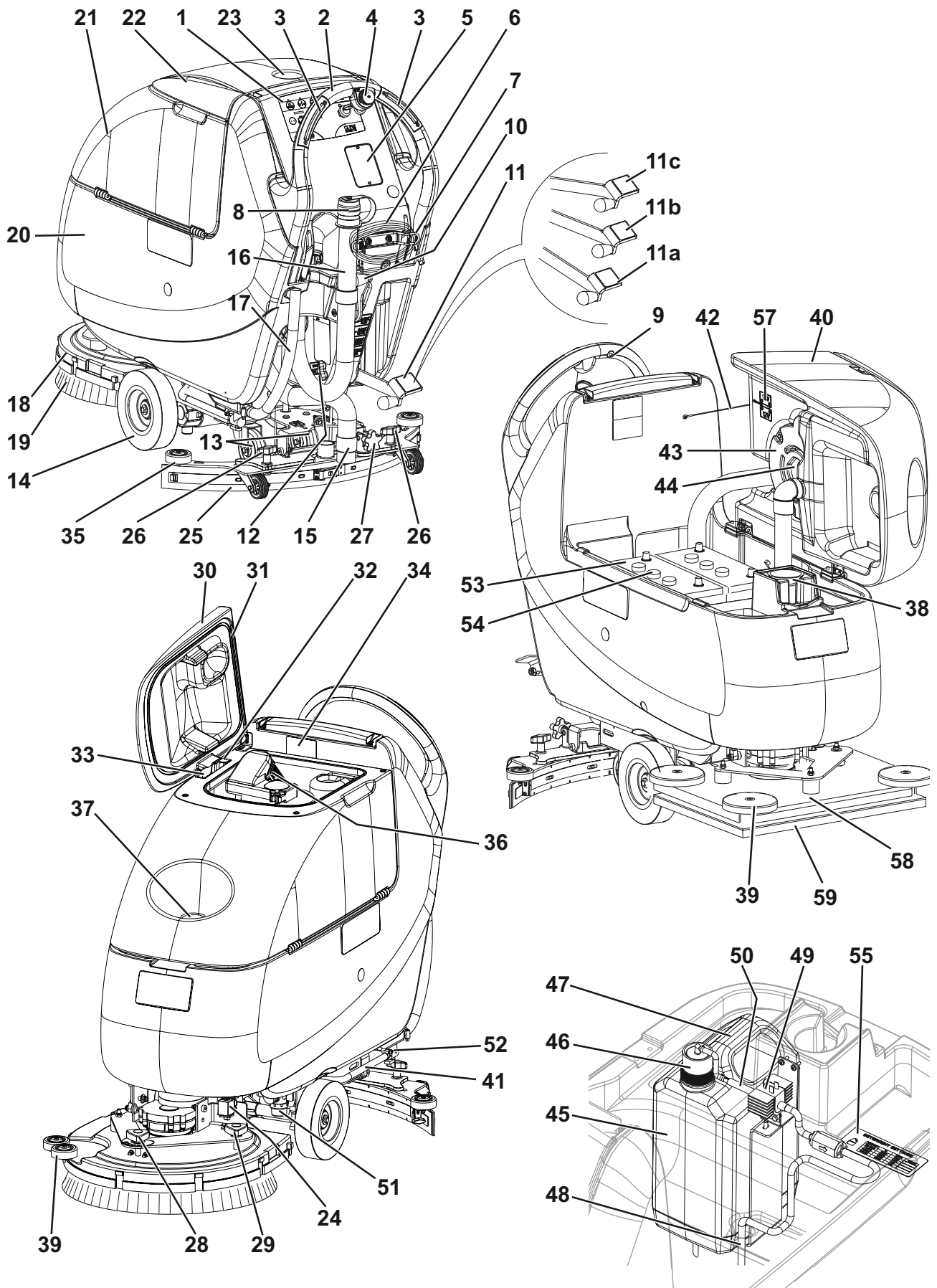
(\*) Only for **SCRUBTEC 545BL, 553BL, BOOST 5**

(\*\*) Only for machines with Chemical Mixing System (optional)

(\*\*\*) Only for **SCRUBTEC 545B, 553B**

## MAINTENANCE

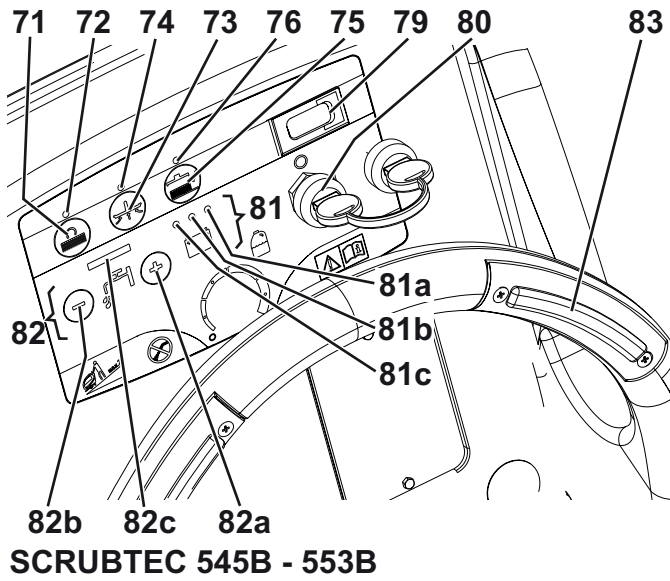
## MACHINE NOMENCLATURE (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5) (Continues)



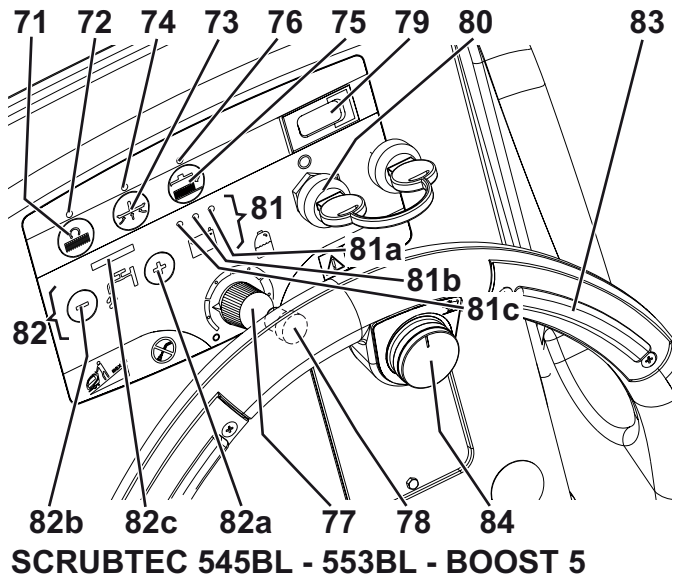
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## MAINTENANCE

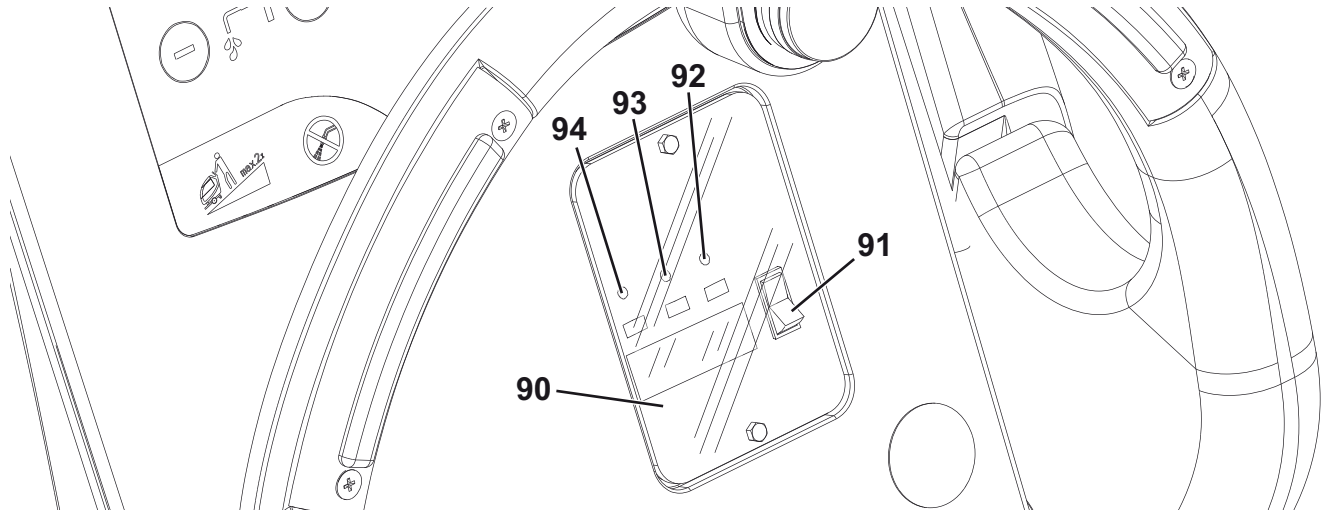
### MACHINE NOMENCLATURE (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5) (Continues)



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**MACHINE NOMENCLATURE (SCRUBTEC 653B, 653BL, 651BCL, 661BL)**

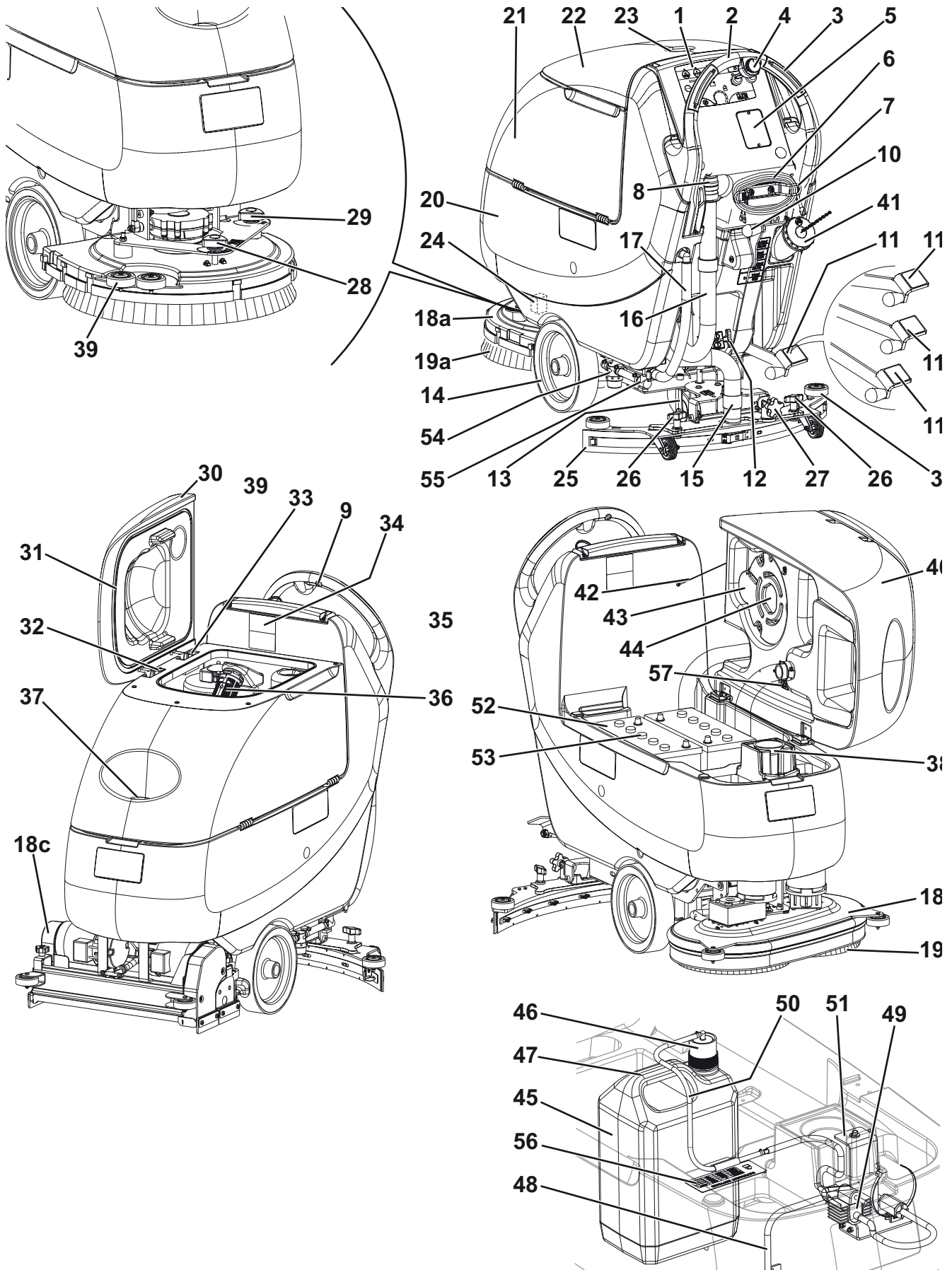
Throughout this Manual you will find numbers in brackets – for example: (2). These numbers refer to the components indicated in these two nomenclature pages. Refer to these pages whenever it is required to identify a component mentioned in the text.

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Control panel</li> <li>2. Handlebar</li> <li>3. Brush/forward gear switch (*). Brush switch (***)</li> <li>4. Drive speed adjuster (*)</li> <li>5. Battery charger data inspection window (optional)</li> <li>6. Battery charger cable (optional)</li> <li>7. Battery charger cable holder (optional)</li> <li>8. Recovery water drain hose plug</li> <li>9. Reverse gear switch</li> <li>10. Squeegee lifting/lowering lever</li> <li>11. Deck lifting/lowering pedal</li> <li>11a. Pedal position when deck is lifted</li> <li>11b. Pedal position when deck is lowered</li> <li>11c. Extra pressure activation (optional)</li> <li>12. Battery connector (red). This connector also works as EMERGENCY push-button, to stop immediately all functions.</li> <li>13. Rear steering wheel</li> <li>14. Front wheels on fixed axle. Driving wheels (*)</li> <li>15. Squeegee vacuum hose</li> <li>16. Recovery water drain hose</li> <li>17. Solution/clean water drain and level check hose</li> <li>18a. Deck with one brush/pad-holder</li> <li>18b. Deck with two brushes/pad-holders</li> <li>18c. Deck with two cylindrical brushes</li> <li>19a. Brushes/pad-holders</li> <li>19b. Cylindrical brushes</li> <li>20. Solution/clean water tank</li> <li>21. Recovery water tank</li> <li>22. Recovery water tank cover</li> <li>23. Can holder</li> <li>24. Solenoid valve</li> <li>25. Squeegee</li> <li>26. Squeegee mounting handwheels</li> <li>27. Squeegee adjusting handwheel</li> <li>28. Machine straight forward movement adjusting handwheel</li> <li>29. Machine forward speed adjusting handwheel (***)</li> <li>30. Recovery water tank cover</li> <li>31. Tank cover gasket</li> <li>32. Cover movable retaining plate</li> <li>33. Cover fixed retaining plate (do not remove!)</li> <li>34. Serial number plate/technical data/conformity certification</li> <li>35. Squeegee bumper wheels</li> <li>36. Vacuum grid with automatic shut-off float</li> <li>37. Solution/clean water front filler neck</li> <li>38. Filter</li> <li>39. Deck bumper wheels</li> <li>40. Recovery water tank (opened)</li> <li>41. Solution/clean water rear filler neck</li> <li>42. Tank safety cable</li> <li>43. Vacuum system motor cover</li> <li>44. Vacuum system motor sound-deadening filter</li> <li>45. Detergent tank (**)</li> <li>46. Detergent tank plug (**)</li> <li>47. Detergent tank handle (**)</li> <li>48. Detergent feed hose (**)</li> <li>49. Detergent pump (**)</li> <li>50. Detergent tank - pump connecting hose (**)</li> </ol> | <ol style="list-style-type: none"> <li>51. Detergent pump holder (**)</li> <li>52. Batteries</li> <li>53. Battery caps</li> <li>54. Solution/clean water filter</li> <li>55. Solution/clean water tap</li> <li>56. Reference table for detergent proportioning (**)</li> <li>57. Battery connection diagram</li> <li>71. Brush/pad-holder switch</li> <li>72. Brush/pad-holder switch warning light</li> <li>73. Vacuum system switch</li> <li>74. Vacuum system switch warning light</li> <li>75. Brush/pad-holder release switch</li> <li>76. Brush/pad-holder release switch warning light</li> <li>77. Detergent flow control knob (**)</li> <li>78. Reverse gear switch (*)</li> <li>79. Hour counter (optional)</li> <li>80. Ignition key (0 - I)</li> <li>81. Battery charge indicator</li> <li>81a. Charged battery warning light (green)</li> <li>81b. Semi-discharged battery warning light (yellow)</li> <li>81c. Discharged battery warning light (red)</li> <li>82. Washing water flow control switches</li> <li>82a. Flow increase switch</li> <li>82b. Flow decrease switch</li> <li>82c. Washing water flow indicator</li> <li>83. Brush/forward gear switch (*). Brush switch (***)</li> <li>84. Speed adjuster (*)</li> <li>90. Electronic battery charger</li> <li>91. Lead (WET) or gel (GEL) battery selector</li> <li>92. Green warning light (ON: the battery charger is on and batteries are charged)</li> <li>93. Yellow warning light (ON: the battery charger is on and batteries are semi-discharged)</li> <li>94. Red warning light (ON: the battery charger is on and it is charging the batteries)</li> </ol> <p>(*) Only for <b>SCRUBTEC 653BL, 651BCL, 661BL</b><br/> (**) Only for machines with Chemical Mixing System (optional)<br/> (***) Only for <b>SCRUBTEC 653B</b></p> |
|---|---|



# MAINTENANCE

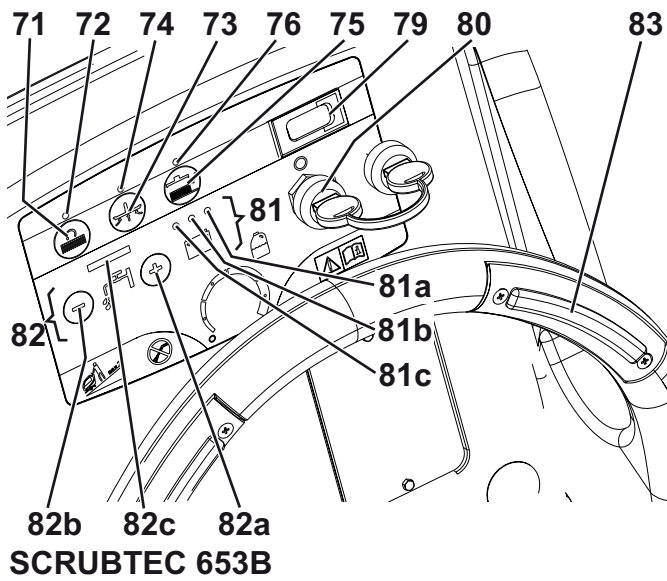
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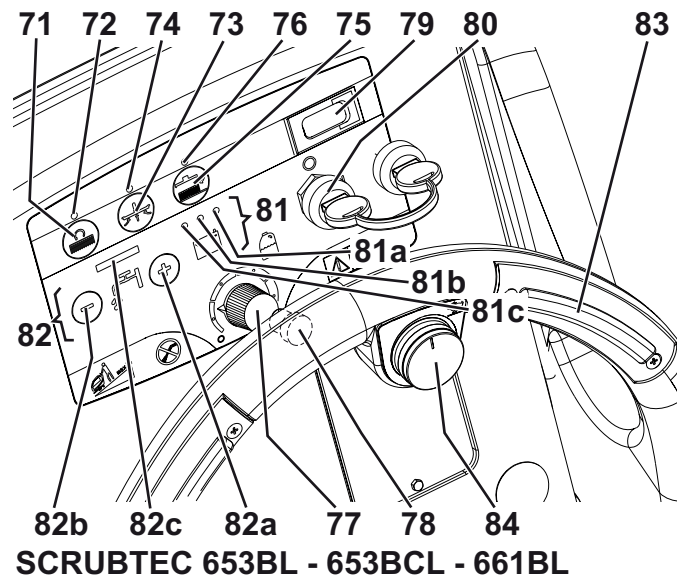
P100115

## MAINTENANCE

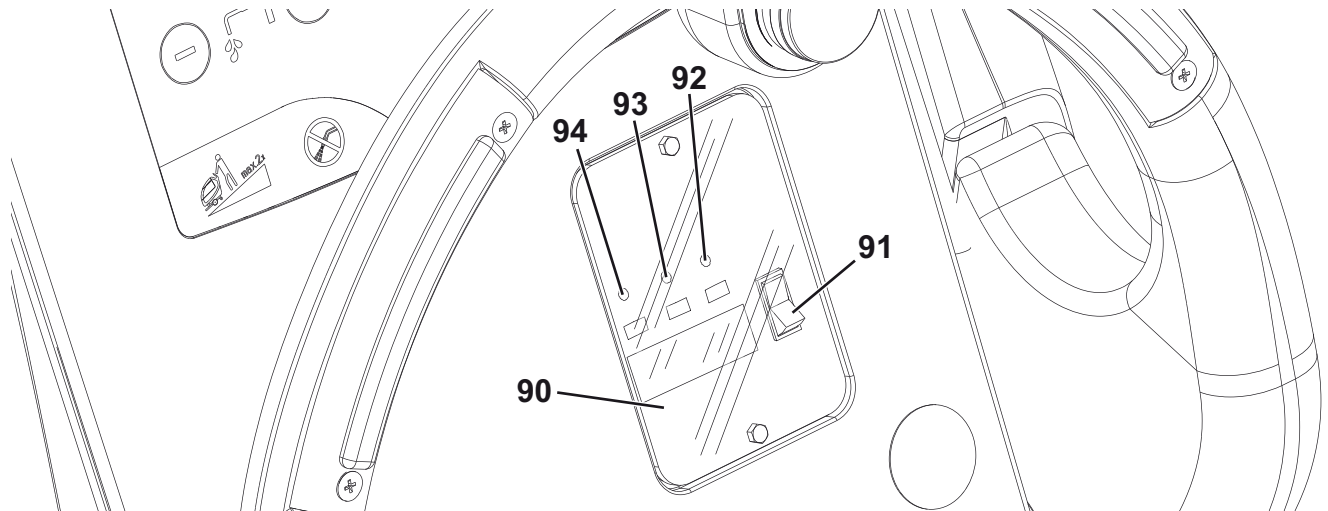
## MACHINE NOMENCLATURE (SCRUBTEC 653B, 653BL, 651BCL, 661BL) (Continues)



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P100104



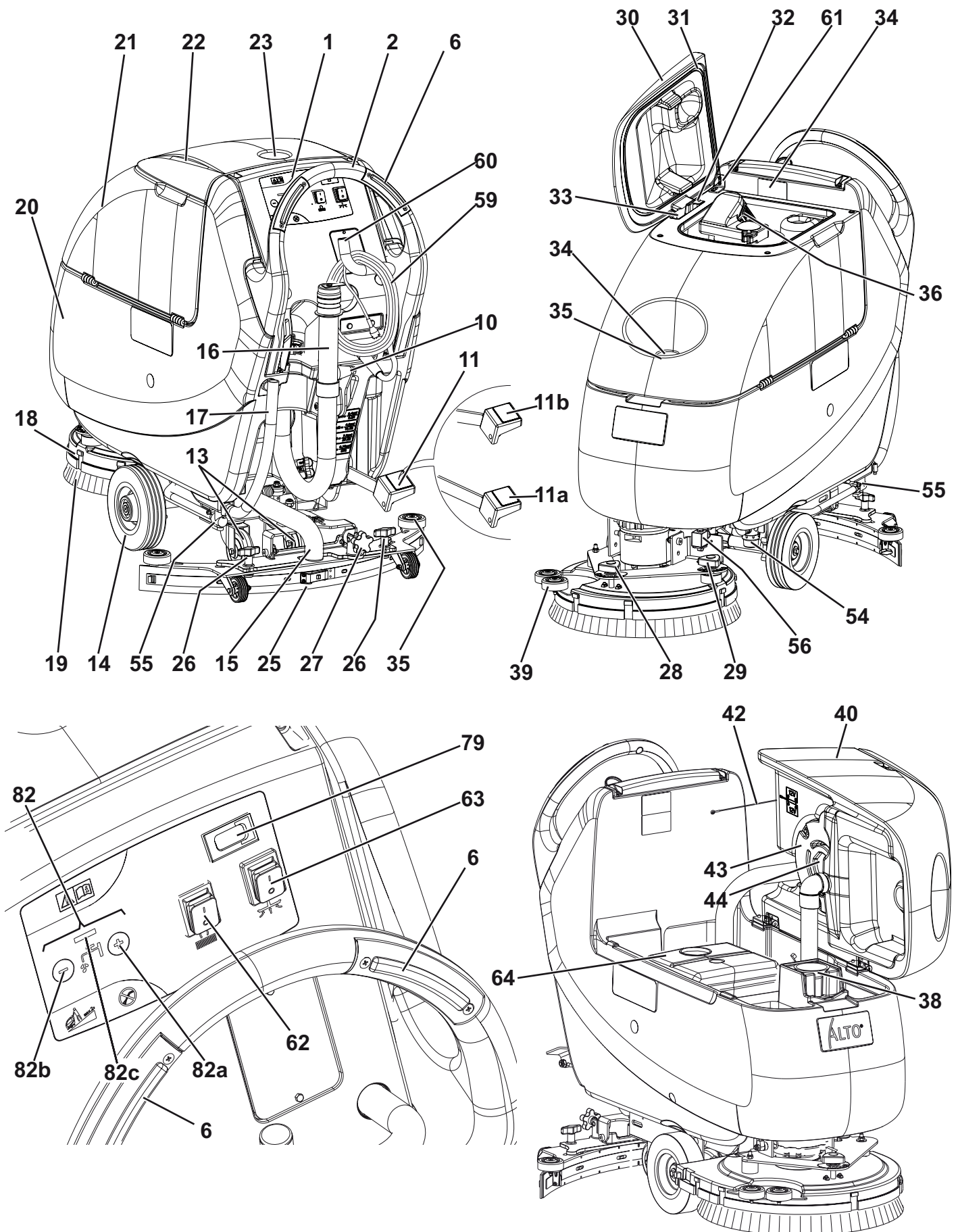
## MAINTENANCE

### MACHINE NOMENCLATURE (SCRUBTEC 545E, 553E)

Throughout this Manual you will find numbers in brackets – for example: (2). These numbers refer to the components indicated in these two nomenclature pages. Refer to these pages whenever it is required to identify a component mentioned in the text.

1. Control panel
2. Handlebar
6. Brush/pad-holder switches
10. Squeegee lifting/lowering lever
11. Deck lifting/lowering pedal
- 11a. Pedal position when deck is lifted
- 11b. Pedal position when deck is lowered
13. Rear steering wheels
14. Front wheels on fixed axle
15. Squeegee vacuum hose
16. Recovery water drain hose
17. Solution drain and level check hose
18. Brush/pad-holder deck
19. Brush/pad-holder with pad
20. Solution tank
21. Recovery water tank
22. Recovery water tank cover
23. Can holder
25. Squeegee
26. Squeegee mounting handwheels
27. Squeegee balance adjusting handwheel
28. Machine straight forward movement adjusting handwheel
29. Machine forward speed adjusting handwheel
30. Recovery water tank cover (open)
31. Tank cover gasket
32. Cover movable retaining plate
33. Cover fixed retaining plate
34. Serial number plate/technical data/conformity certification
35. Squeegee bumper wheel
36. Vacuum grid with automatic shut-off float
37. Solution filler neck
38. Filter
39. Deck bumper wheel
40. Recovery water tank (opened)
41. Tank lifting handle
42. Lifted tank tie rod
43. Vacuum system motor cover
44. Vacuum system motor sound-deadening filter
54. Solution filter
55. Solution tap
56. Solenoid valve
59. Power supply cable
60. Power supply cable holder
61. Recovery water tank retaining plate
62. Brush/pad-holder switch
63. Vacuum system switch
64. Counterweight
79. Hour counter (optional)
82. Washing water flow control switches
- 82a. Flow increase switch
- 82b. Flow decrease switch
- 82c. Solution flow indicator

## MACHINE NOMENCLATURE (SCRUBTEC 545E, 553E) (Continues)



S100145

## MAINTENANCE

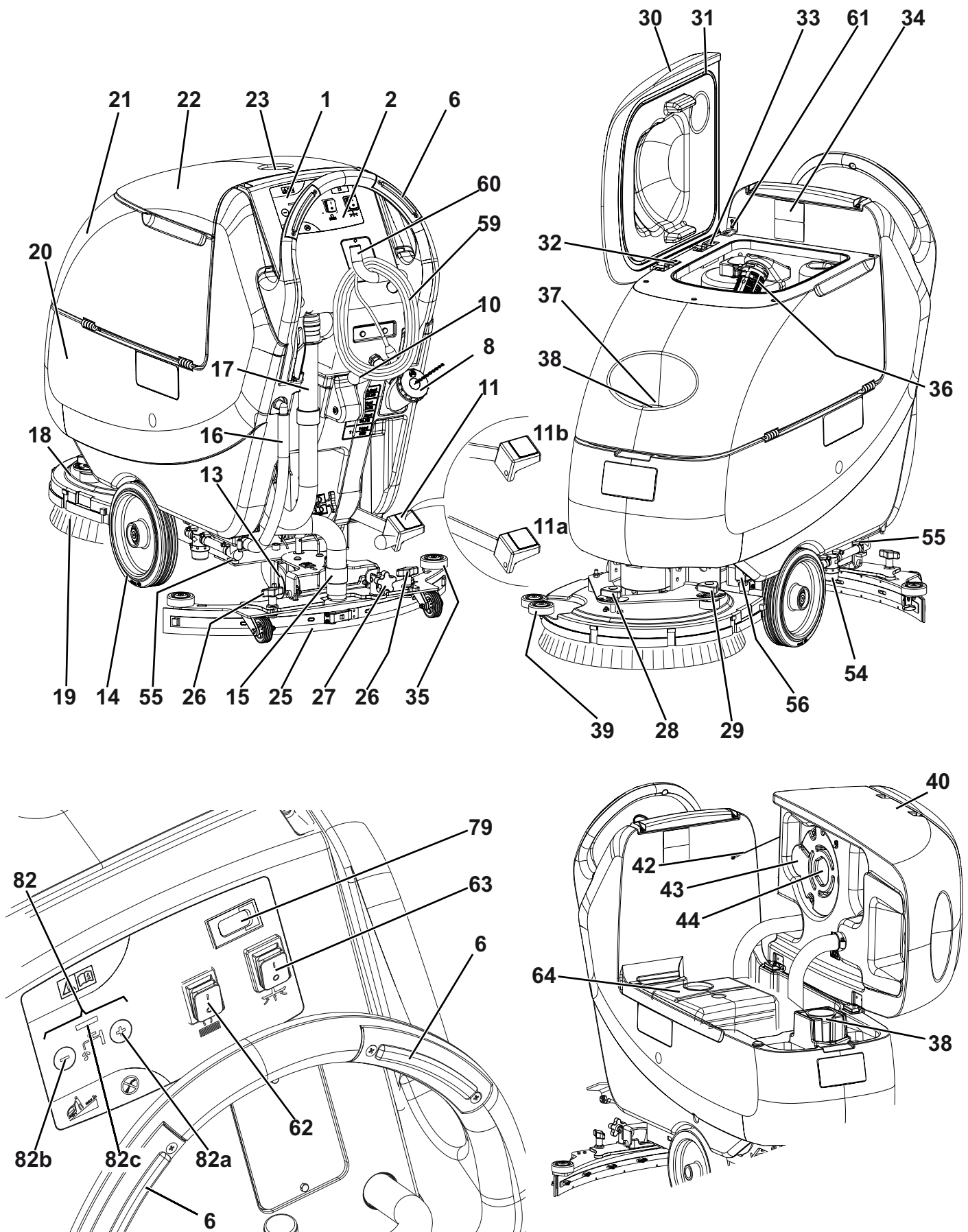
### MACHINE NOMENCLATURE (SCRUBTEC 653E)

Throughout this Manual you will find numbers in brackets – for example: (2). These numbers refer to the components indicated in these two nomenclature pages. Refer to these pages whenever it is required to identify a component mentioned in the text.

1. Control panel
2. Handlebar
8. Solution rear filler neck
9. Water removable filler hose (optional)
10. Squeegee lifting/lowering lever
11. Deck lifting/lowering pedal
- 11a. Pedal position when deck is lifted
- 11b. Pedal position when deck is lowered
13. Rear steering wheel
14. Front wheels on fixed axle
15. Squeegee vacuum hose
16. Recovery water drain hose
17. Solution drain and level check hose
18. Brush/pad-holder deck
19. Brush/pad-holder with pad
20. Solution tank
21. Recovery water tank
22. Recovery water tank cover
23. Can holder
25. Squeegee
26. Squeegee mounting handwheels
27. Squeegee balance adjusting handwheel
28. Machine straight forward movement adjusting handwheel
29. Machine forward speed adjusting handwheel
30. Recovery water tank cover (open)
31. Tank cover gasket
32. Cover movable retaining plate
33. Cover fixed retaining plate
34. Serial number plate/technical data/conformity certification
35. Squeegee bumper wheel
36. Vacuum grid with automatic shut-off float
37. Solution front filler neck
38. Foam filter
39. Deck bumper wheel
40. Recovery water tank (opened)
41. Tank lifting handle
42. Lifted tank tie rod
43. Vacuum system motor cover
44. Vacuum system motor sound-deadening filter
54. Solution filter
55. Solution tap
56. Solenoid valve
59. Power supply cable
60. Power supply cable holder
61. Recovery water tank retaining plate
62. Brush/pad-holder switch
63. Vacuum system switch
64. Counterweight
79. Hour counter (optional)
82. Washing water flow control switches
- 82a. Flow increase switch
- 82b. Flow decrease switch
- 82c. Washing water flow indicator

## MAINTENANCE

## MACHINE NOMENCLATURE (SCRUBTEC 653E) (Continues)



S100146

## SOLUTION/CLEAN WATER SUPPLY SYSTEM

## SOLUTION/CLEAN WATER SUPPLY SYSTEM

### SOLUTION/CLEAN WATER TANK AND SUPPLY SYSTEM CLEANING (All models)

1. Drive the machine to the appointed solution disposal area.
2. Turn the ignition key (80) to "0".  
(**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
3. Empty the solution/clean water tank (20) with the hose (17).
4. Start the machine (as shown in the User Manual) and keep it running until the solution/clean water tank is completely empty.
5. (**SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0".  
(**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
6. Clean the tank (20) with clean water.
7. Start the machine (as shown in the User Manual) and keep it running until the solution/clean water tank is completely empty.
8. Clean the solution filter (see the following procedure).

### SOLUTION FILTER CLEANING (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 545E, 553E**)

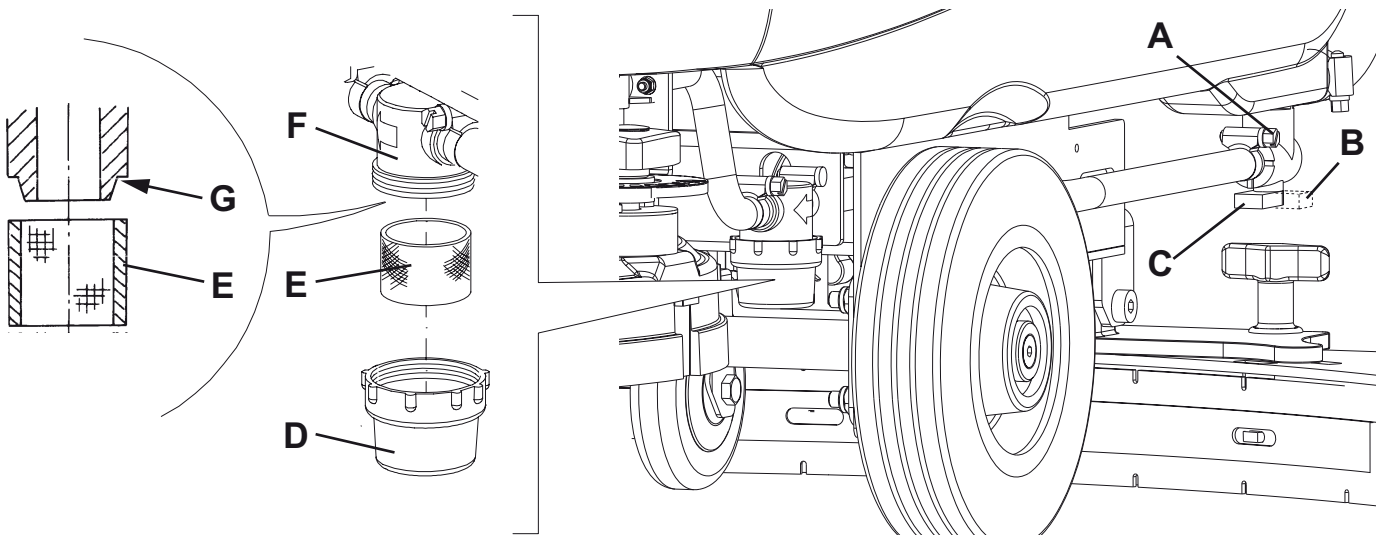
1. Drive the machine on a level floor.
2. (**SCRUBTEC 545BL, 553BL, BOOST 5**). Turn the ignition key (80) to "0".  
(**SCRUBTEC 545E, 553E**). Disconnect the power supply cable (59) from the electrical mains.
3. Close the solution tap (A) under the machine left lower side. The tap (A) is closed when it is in the position (B) and it is open when it is in the position (C).
4. Remove the transparent cover (D), then remove the filter strainer (E). Clean and install them on the support (F).



#### NOTE

The filter strainer (E) must be correctly positioned on the housing (G) of the support (F).

5. Open the tap (A).



P100109



## SOLUTION/CLEAN WATER SUPPLY SYSTEM

### SOLUTION FILTER CLEANING (SCRUBTEC 653B, 653BL, 651BCL, 661BL, 653E)

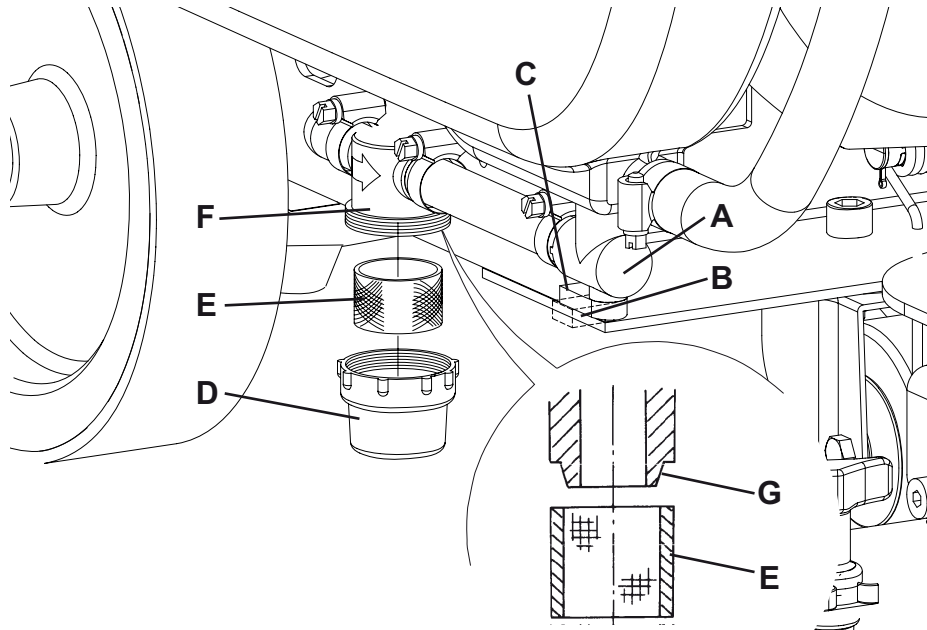
1. Drive the machine on a level floor.
2. (**SCRUBTEC 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0".  
(**SCRUBTEC 653E**). Disconnect the power supply cable (59) from the electrical mains.
3. Close the solution tap (A, Fig. 8) under the machine left lower side. The tap (A) is closed when it is in the position (B) and it is open when it is in the position (C).
4. Remove the transparent cover (D), then remove the filter strainer (E). Clean and install them on the support (F).



#### NOTE

The filter strainer (E) must be correctly positioned on the housing (G) of the support (F).

5. Open the tap (A).



P100118

## SOLUTION/CLEAN WATER SUPPLY SYSTEM

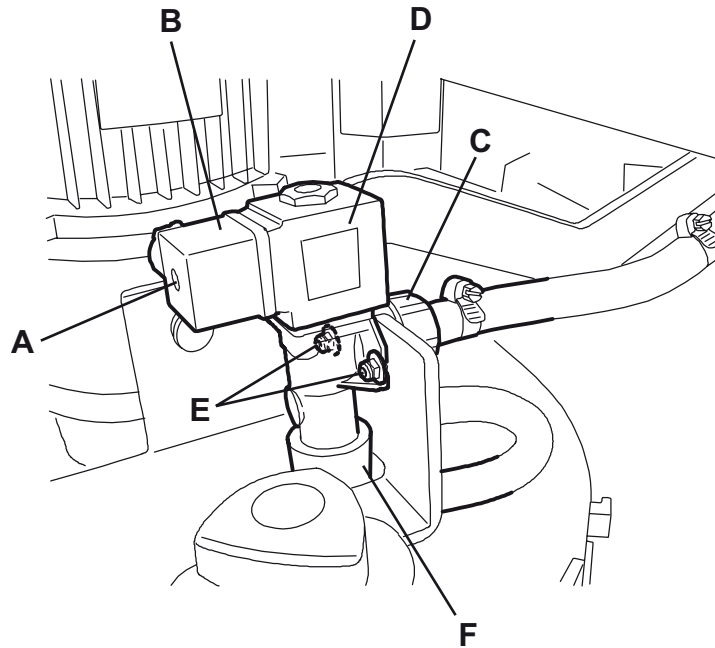
### SOLENOID VALVE DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 545E, 553E)

#### Disassembly

1. Remove the brush.
2. Lower the deck by pressing the pedal (11).
3. Remove the screw (A), disconnect the connector (B) and recover the gasket.
4. Disconnect the union (C) from the solenoid valve (D) and recover the gasket.
5. Remove the screws (E).
6. Slightly lift the solenoid valve (D), disconnect the union (F) and recover the gasket.
7. Recover the solenoid valve (D).

#### Assembly

8. Assemble in the reverse order of disassembly.



S301522



## SOLUTION/CLEAN WATER SUPPLY SYSTEM

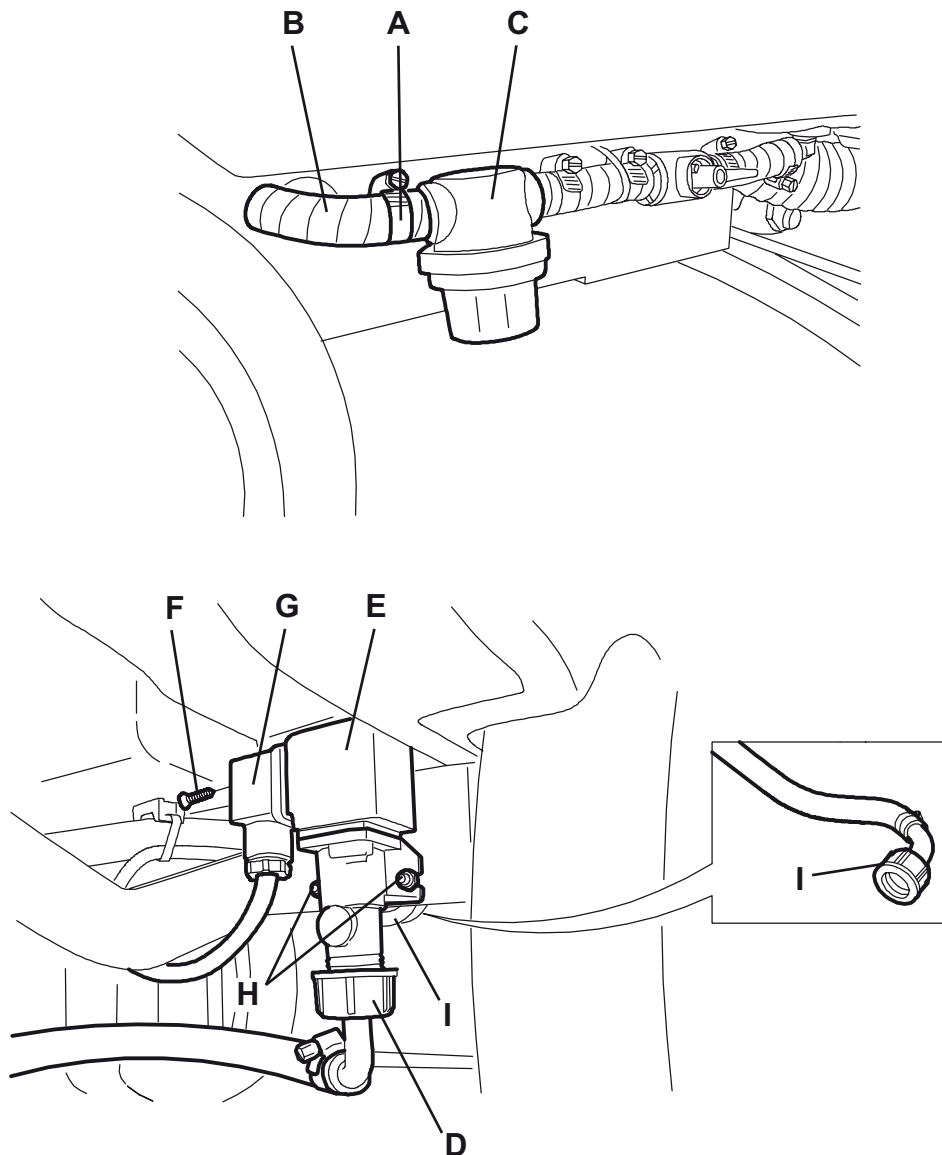
## SOLENOID VALVE DISASSEMBLY/ASSEMBLY (SCRUBTEC 653B, 653BL, 651BCL, 661BL, 653E)

**Disassembly**

1. (For machines with brushes/pad-holders) Remove the brushes/pad-holders.
2. Lower the deck by pressing the pedal (11).
3. Loosen the clamp (A) and disconnect the hoses (B) from the filter assembly (C).
4. Disconnect the union (D) from the solenoid valve (E) and recover the gasket.
5. Remove the screw (F), disconnect the connector (G) and recover the gasket.
6. Remove the nuts (H).
7. Remove the solenoid valve (E) with the hoses (B). If necessary separate the hoses (B) from the solenoid valve and disconnect it from the union (I).

**Assembly**

8. Assemble in the reverse order of disassembly.



S301523A

## SOLUTION/CLEAN WATER SUPPLY SYSTEM

### TROUBLESHOOTING

#### **Small amount of solution or no solution reaches the brush**

Possible causes:

1. The solution/clean water filter is clogged/dirty (clean).
2. The solution/clean water tap is stuck closed (replace).
3. The solenoid valve is broken or there is an open in the electrical connection (replace the solenoid valve/repair the electrical connection).
4. There is debris in the solution tank clogging the output hole (clean the tank).
5. There is debris in the solution/clean water hoses clogging the flow (clean the hoses).

#### **The solution/clean water reaches the brush also when the machine is off**

Possible causes:

1. There is dirt or calcium deposit on the solenoid valve gasket (clean).
2. The solenoid valve is broken (replace).

## CHEMICAL MIXING SYSTEM

## CHEMICAL MIXING SYSTEM

## TROUBLESHOOTING

**Small amount of detergent or no detergent reaches the brush**

Possible causes:

1. The detergent flow percentage is too low (check/change the percentage as shown in the User Manual).
2. The hydraulic circuit upstream of the detergent pump is not triggered (check if the hose (48) is filled and, if necessary, perform one or more draining cycle, as shown in the relevant paragraph).
3. The pump is broken or there is an open in the electrical connection (replace the pump/repair the electrical connection).
4. There is debris in the detergent tank clogging the output hole (clean the tank).
5. There is debris in the detergent hoses clogging the detergent flow (clean the hoses).
6. The function electronic board is faulty (replace).
7. The RV3 potentiometer is disconnected or faulty.
8. The one-way valve is clogged (replace or clean with compressed air).

**The detergent reaches the brush also when the machine is off**

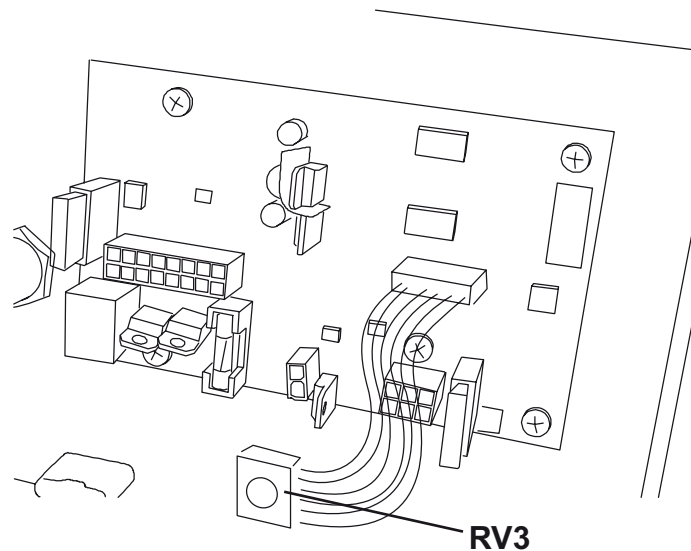
Possible causes:

1. The pump is broken (replace).
2. The one-way valve is broken (replace).

**There is water in the detergent tank.**

Possible causes:

1. The one-way valve is broken (replace).



S301568A

## BRUSHING SYSTEM

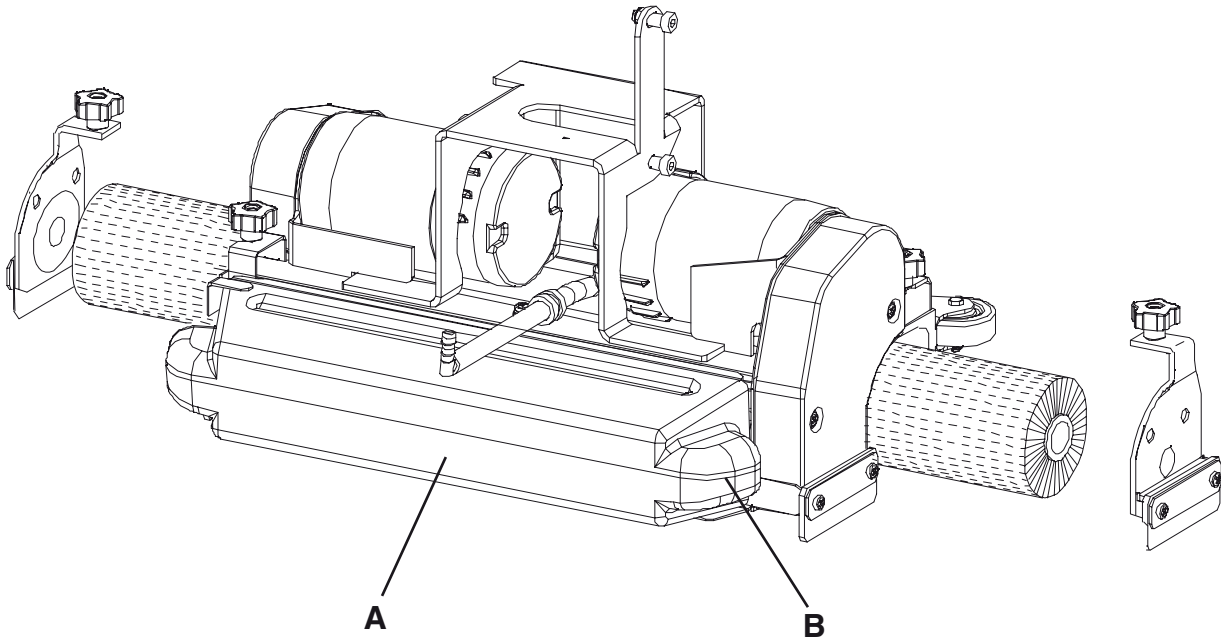
## BRUSHING SYSTEM

### BRUSH/PAD CLEANING

**WARNING!**

*It is advisable to wear protective gloves when cleaning the brushes/pads because there may be sharp debris.*

1. Remove the brushes/pads, as shown in the User Manual.
2. Clean and wash the brushes/pads with water and detergent.
3. Check the brushes/pads for integrity and wear; if necessary, replace them.
4. **(SCRUBTEC 651BCL)**. Remove the debris container (A) by pulling it on one side with the handle (B). Empty and wash the debris container (A), and then install it by engaging it on the inside fasteners.



S000000

## BRUSHING SYSTEM

**BRUSH/PAD-HOLDER DECK OR CYLINDRICAL BRUSH DECK DISASSEMBLY/ASSEMBLY  
(SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5)**

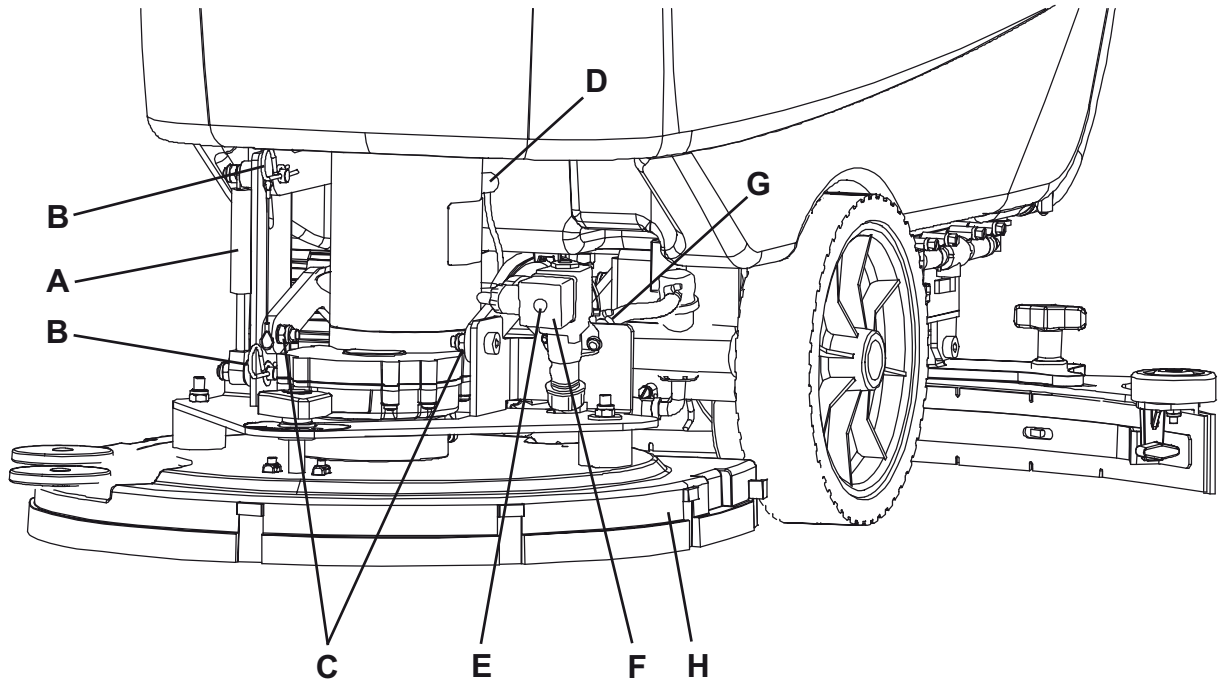
The machine can be equipped with either the brush/pad-holder deck or the cylindrical brush deck.

**Disassembly**

1. Drive the machine on a level floor.
2. Remove the brushes/pad-holders, as shown in the User Manual.
3. Lower the brush/pad-holder deck by pressing the pedal (11).
4. Remove the cotter pins (B), then remove the gas spring (A).
5. Disconnect the brush/pad-holder motor electrical connection (D).
6. Remove the screw (E) and disconnect the solenoid valve connection (F).
7. Disconnect the solution hose connection (G).
8. Remove the screws (C), then remove the brush/pad-holder deck (H).

**Assembly**

1. Assemble in the reverse order of disassembly.



S301530A

## BRUSHING SYSTEM

### BRUSH/PAD-HOLDER DECK OR CYLINDRICAL BRUSH DECK DISASSEMBLY/ASSEMBLY (SCRUBTEC 653B, 653BL, 651BCL, 661BL)

The machine can be equipped with either the brush/pad-holder deck (18a and 18b) or the cylindrical brush deck (18c), according to the following procedures.



#### WARNING!

*When the deck is installed/removed, it may be necessary to change the squeegee too, because they must have the same width. For correct matching of deck and squeegee, see the Squeegee Installation paragraph in the User Manual.*

#### Disassembly

1. Drive the machine on a level floor.
2. Remove the brushes/pad-holders, as shown in the User Manual. Do not remove the cylindrical brushes.
3. Lower the brush/pad-holder deck by pressing the pedal (11).
4. Remove the cotter pins (B), then remove the gas spring (A), if equipped.
5. Disconnect the brush/pad-holder motor electrical connection (D).
6. Disconnect the solution hose connection (E).
7. Remove the screws (C), then remove the brush/pad-holder deck (F).

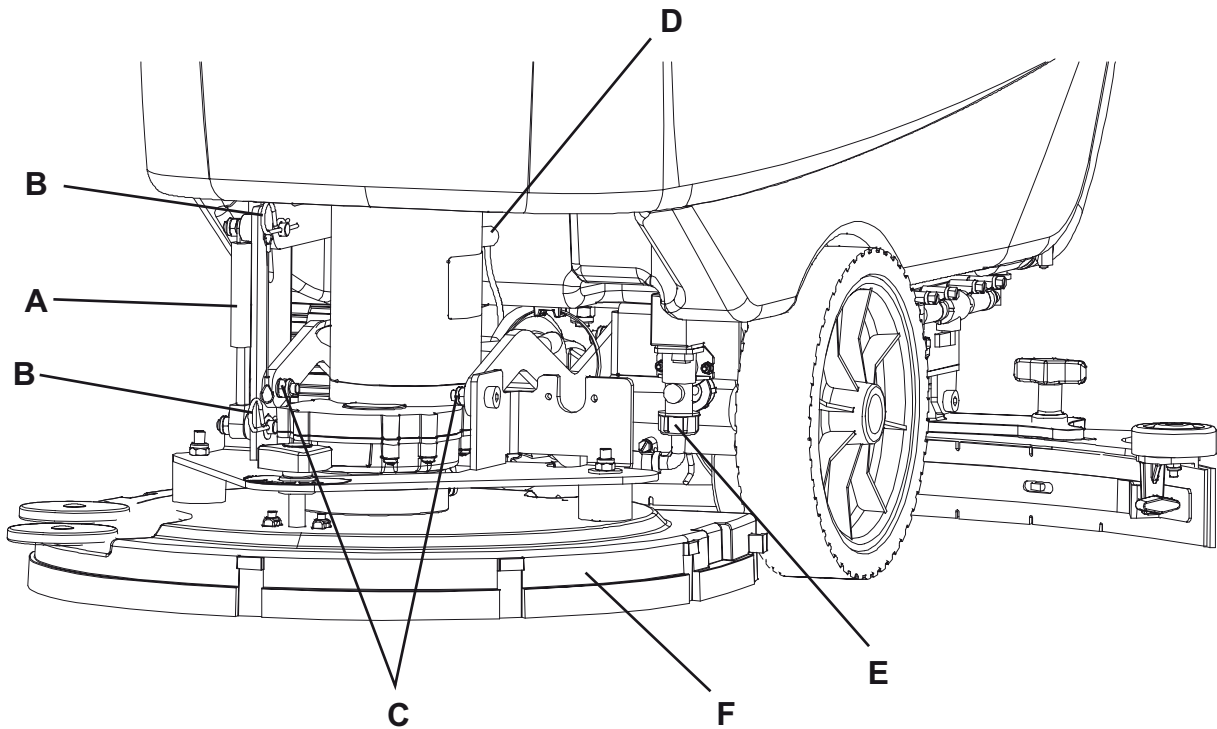
#### Assembly

1. Assemble the components in the reverse order of disassembly, and note the following:
  - When the machine is equipped with the cylindrical brush deck (18c), the gas spring (A) must not be installed.



#### NOTE

*Figure showing 653B with one brush*



S301531A

## BRUSHING SYSTEM

## BRUSH/PAD-HOLDER DECK DISASSEMBLY/ASSEMBLY (SCRUBTEC 545E, 553E, 653E)

## Disassembly

1. Drive the machine to the appointed disposal area, and empty the recovery water tank (21) with the hose (16).
2. Remove the brush/pad-holder, as shown in the User Manual.
3. Place the machine on a hoisting system (if available).  
Otherwise, drive the machine on a level floor.
4. Disconnect the power supply cable (59) from the electrical mains.
5. Open the recovery water tank cover (22).
6. Remove the retaining plate (61) of the tank (40).
7. Carefully lift the tank (40).
8. If the power supply cable (59) is on the holder (60), remove it.
9. Move aside the recovery water drain hose (16).
10. Remove the screws (A) and carefully move the panel (B).
11. Disconnect the brush motor wiring harness connections (C) from the electronic board (D) (connections symbols: "F4" and "F5").
12. Open the brush motor wiring harness clamps (E).
13. Open the brush motor wiring harness clamps (F).
14. Lower the deck by pressing the pedal (11).
15. Disconnect the solution hose connection (G).
16. Remove the screws (H) and (P), then remove the brush/pad-holder deck (I) with the relevant motor and wiring harness.

## Assembly

1. Assemble the components in the reverse order of disassembly, and note the following:
  - When installing the deck (I) on the machine, use the handwheel (Q) to centre the screw hole (P).

**WARNING!**

***When the maintenance/repair procedure is completed, the tank (40) must always be locked with the plate (61).***

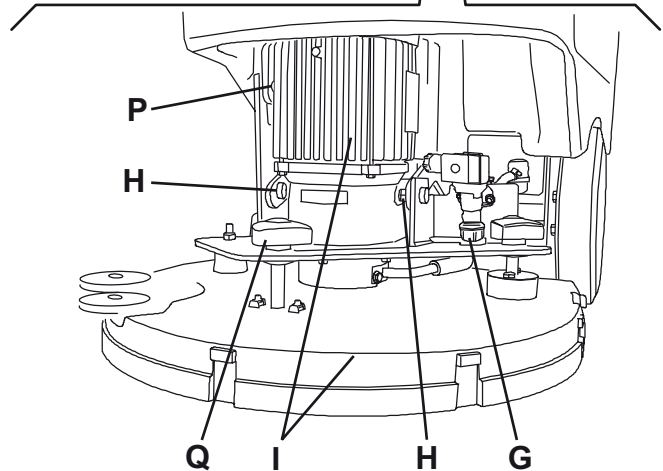
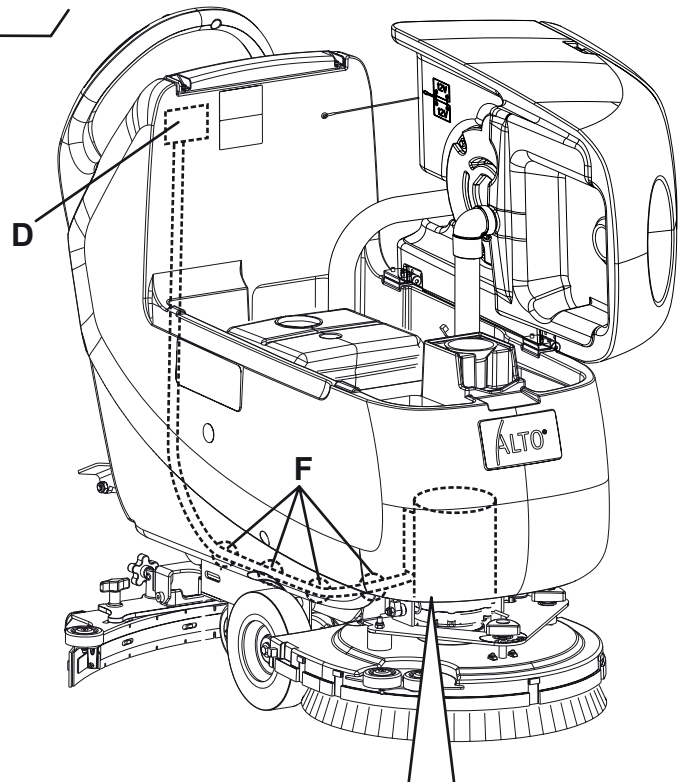
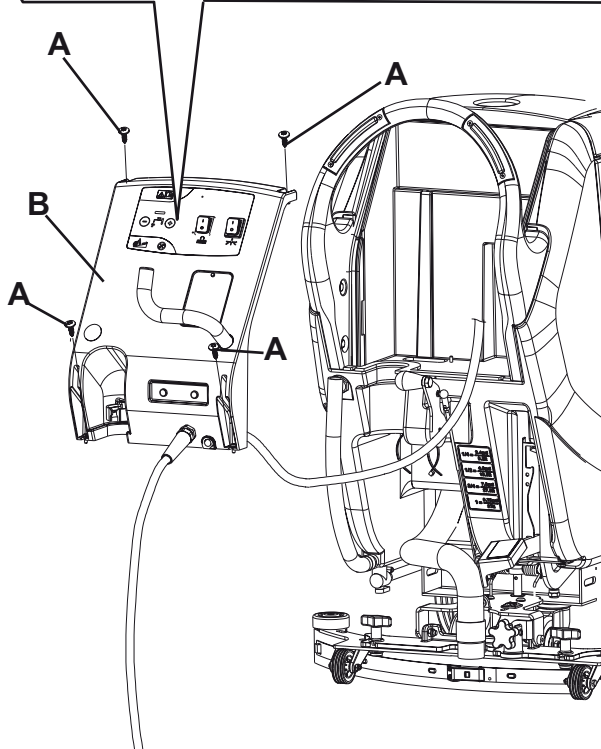
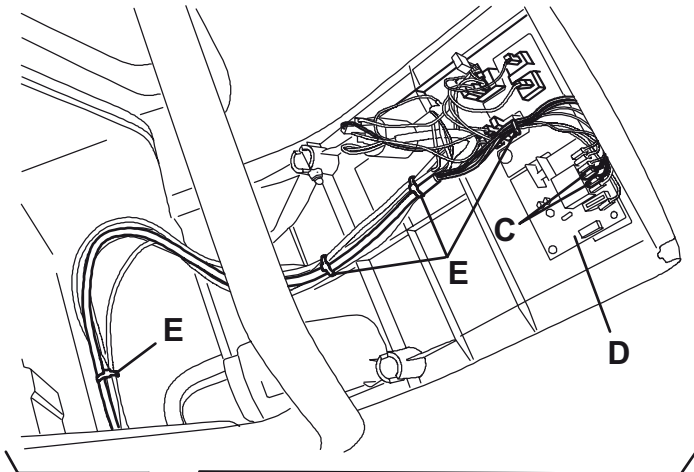
**NOTE**

*Figure showing SCRUBTEC 545E.*



# BRUSHING SYSTEM

## BRUSH/PAD-HOLDER DECK DISASSEMBLY/ASSEMBLY (SCRUBTEC 545E, 553E, 653E) (Continues)



P100151

## BRUSHING SYSTEM

## BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5)

**WARNING!**

*This procedure must be performed by qualified personnel only.*

**Check**

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Remove the brush/pad-holder.
4. Lower the deck by pressing the pedal (11).
5. Turn the ignition key (80) to "0".
6. Carefully lift the tank (40).
7. Apply the amperometric pliers (J) on one cable (K) of the brush motor (L).
8. (**SCRUBTEC 545BL, 553BL, BOOST 5**). Turn the speed adjuster (84) to idle and turn the ignition key (80) to "I".
9. Turn on the brush/pad-holder by pressing the switch (71) and check that the motor electrical input is 3 - 4 A at 24 V (for **SCRUBTEC 545B, 545BL, 553B, 553BL**) and is 10 - 11 A at 24 V (for **SCRUBTEC BOOST 5**). Turn off the brush/pad-holder by pressing the switch (71).  
Turn the ignition key (80) to "0".  
Remove the amperometric pliers (J).

If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:

**NOTE**

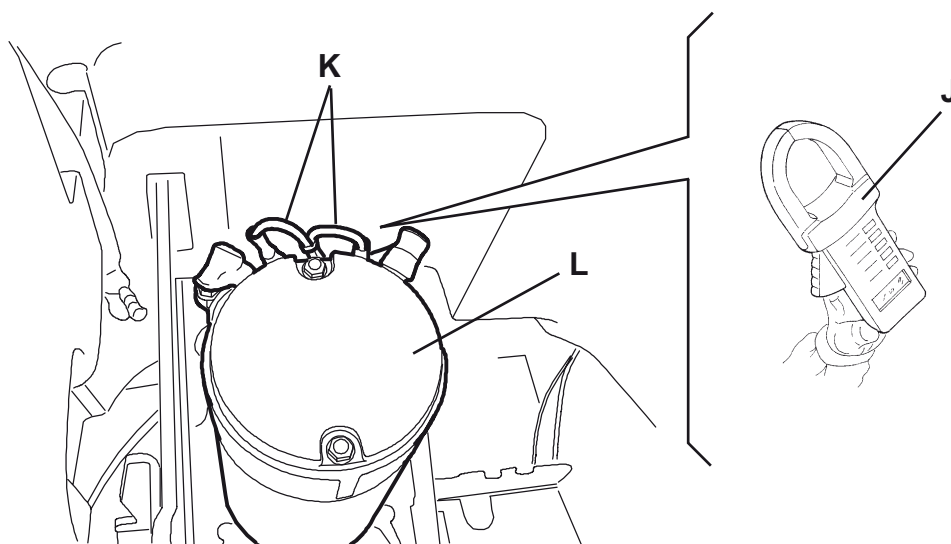
*If the electrical input is higher than the maximum allowed value, the 3 battery warning lights (81) flash simultaneously.*

- Check the tightening of F1 fuse screw (see the procedure in Fuse Check/Replacement paragraph).
- Check if there is dust or dirt (ropes, cables, etc.) on the brush/pad-holder hub.
- Check the motor carbon brushes (see the procedure in the relevant paragraph).
- Disassemble the motor (see the procedure in the relevant paragraph), and check the condition of all its components.

If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

10. Perform steps 3 to 7 in the reverse order.



S301533

## BRUSHING SYSTEM

### BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 653B – 653BL)


**WARNING!**

*This procedure must be performed by qualified personnel only.*

**Check**

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Remove the brush/pad-holder.
4. Lower the deck by pressing the pedal (11).
5. Turn the ignition key (80) to "0".
6. Carefully lift the tank (40).
7. Apply the amperometric pliers (J) on one cable (K) of the brush motor (L).
8. (**SCRUBTEC 653BL**). Turn the speed adjuster (84) to idle and turn the ignition key (80) to "I".
9. Turn on the brush/pad-holder by pressing the switch (71) and check that the motor electrical input is 3 - 4 A at 24 V. Turn off the brush/pad-holder by pressing the switch (71). Turn the ignition key (80) to "0". Remove the amperometric pliers (J).

If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:


**NOTE**

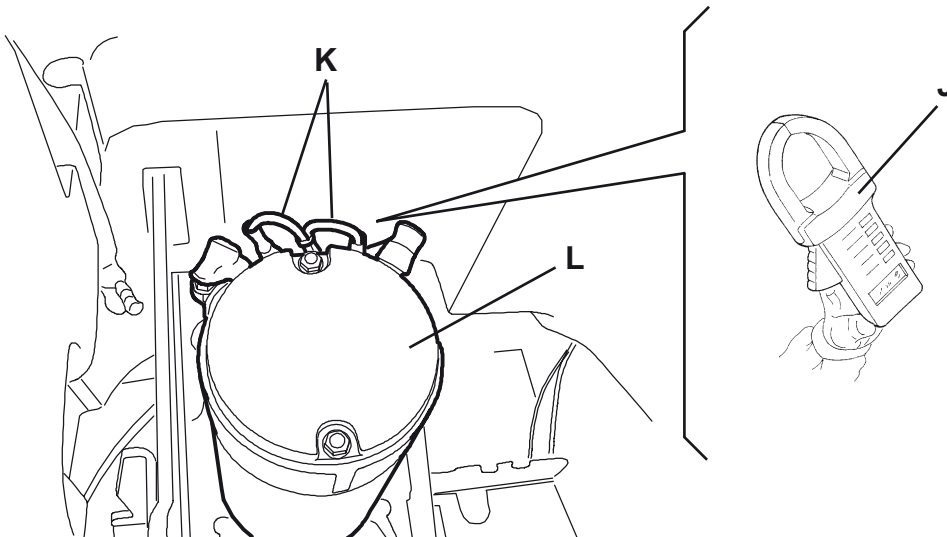
*If the electrical input is higher than the maximum allowed value, the 3 battery warning lights (81) flash simultaneously.*

- Check the tightening of F1 fuse screw (see the procedure in Fuse Check/Replacement paragraph).
- Check if there is dust or dirt (ropes, cables, etc.) on the brush/pad-holder hub.
- Check the motor carbon brushes (see the procedure in the relevant paragraph).
- Disassemble the motor (see the procedure in the relevant paragraph), and check the condition of all its components.

If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

10. Perform steps 3 to 7 in the reverse order.



S301534

## BRUSHING SYSTEM

## BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 651BCL)

**WARNING!**

*This procedure must be performed by qualified personnel only.*

**Check**

1. Remove the brushes, as shown in the User Manual.
2. Lower the deck by pressing the pedal (11).
3. Disconnect the motor which does not have to be checked.
4. Apply the amperometric pliers (A) on one cable (B) of the brush motor (C).
5. Turn the speed adjuster (84) to idle and turn the ignition key (80) to "I".
6. Turn on the brushes by pressing the switch (71) and check that the motor electrical input is 5 - 8 A at 24 V. Turn off the brushes by pressing the switch (71). Turn the ignition key (80) to "0". Remove the amperometric pliers (A).

If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:

**NOTE**

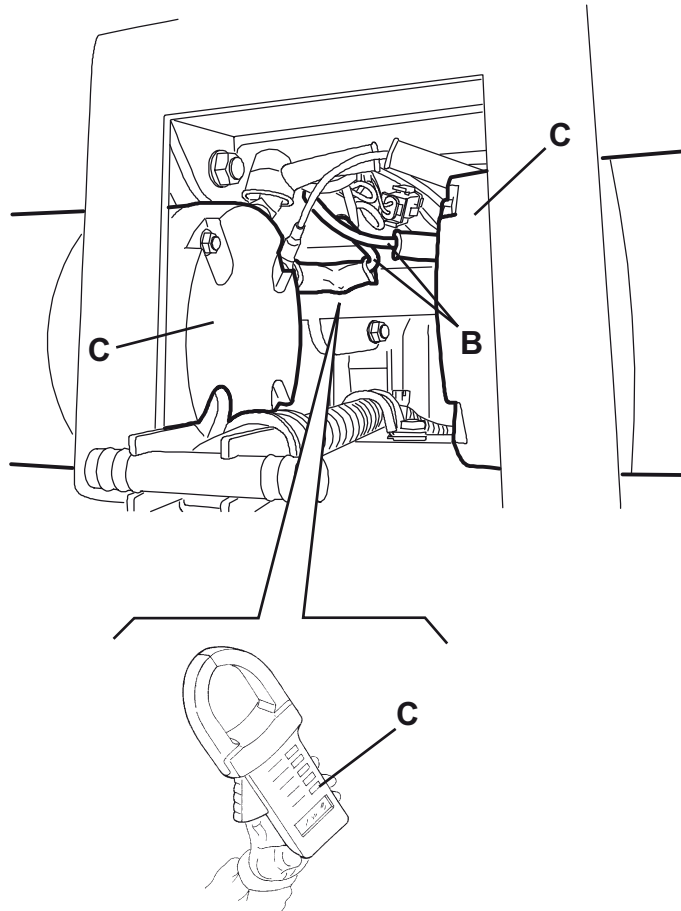
*If the electrical input is higher than the maximum allowed value, the 3 battery warning lights (81) flash simultaneously.*

- Check the tightening of F1 fuse screw (see the procedure in Fuse Check/Replacement paragraph).
- Check if there is dust or dirt (ropes, cables, etc.) on the brush hub.
- Check the motor carbon brushes (see the procedure in the relevant paragraph).
- Disassemble the motor (see the procedure in the relevant paragraph), and check the condition of all its components.

If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

7. Perform steps 1 and 2 in the reverse order.



S301535

## BRUSHING SYSTEM

### BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 661BL)


**WARNING!**

*This procedure must be performed by qualified personnel only.*

**Check**

1. Remove the brushes, as shown in the User Manual.
2. Lower the deck by pressing the pedal (11).
3. Disconnect the motor which does not have to be checked.
4. Apply the amperometric pliers (A) on one cable (B) of the brush motor (C).
5. Turn the speed adjuster (84) to idle and turn the ignition key (80) to "I".
6. Turn on the brushes by pressing the switch (71) and check that the motor electrical input is 2 - 4 A at 24 V. Turn off the brushes by pressing the switch (71).  
Turn the ignition key (80) to "0".  
Remove the amperometric pliers (A).

If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:

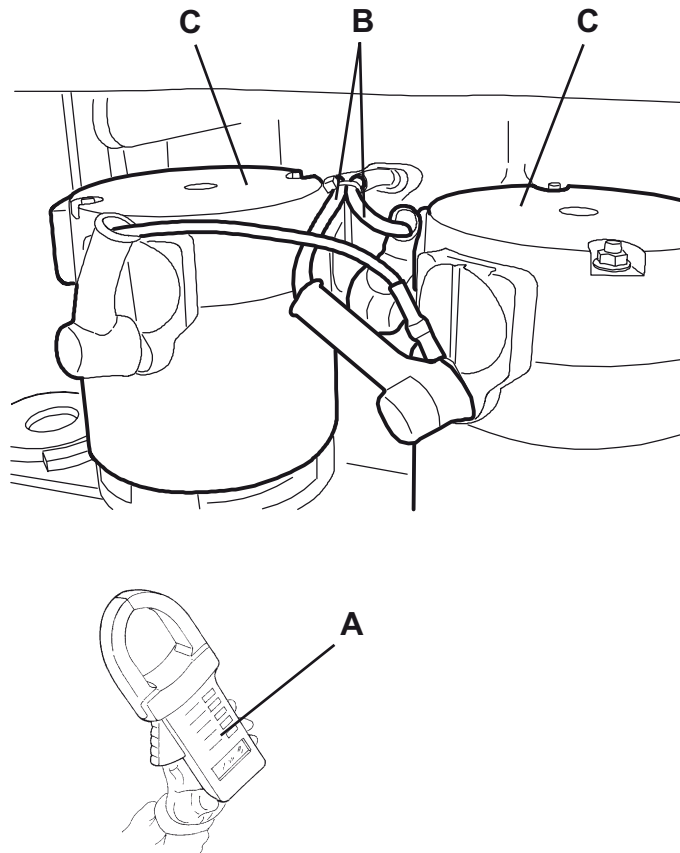

**NOTE**

*If the electrical input is higher than the maximum allowed value, the 3 battery warning lights (81) flash simultaneously.*

- Check the tightening of F1 fuse screw (see the procedure in Fuse Check/Replacement paragraph).
  - Check if there is dust or dirt (ropes, cables, etc.) on the brush hub.
  - Check the motor carbon brushes (see the procedure in the relevant paragraph).
  - Disassemble the motor (see the procedure in the relevant paragraph), and check the condition of all its components.
- If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

7. Perform steps 1 and 2 in the reverse order.



S301536

### BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545E, 553E, 653E)

## BRUSHING SYSTEM

**WARNING!**

*This procedure must be performed by qualified personnel only.*

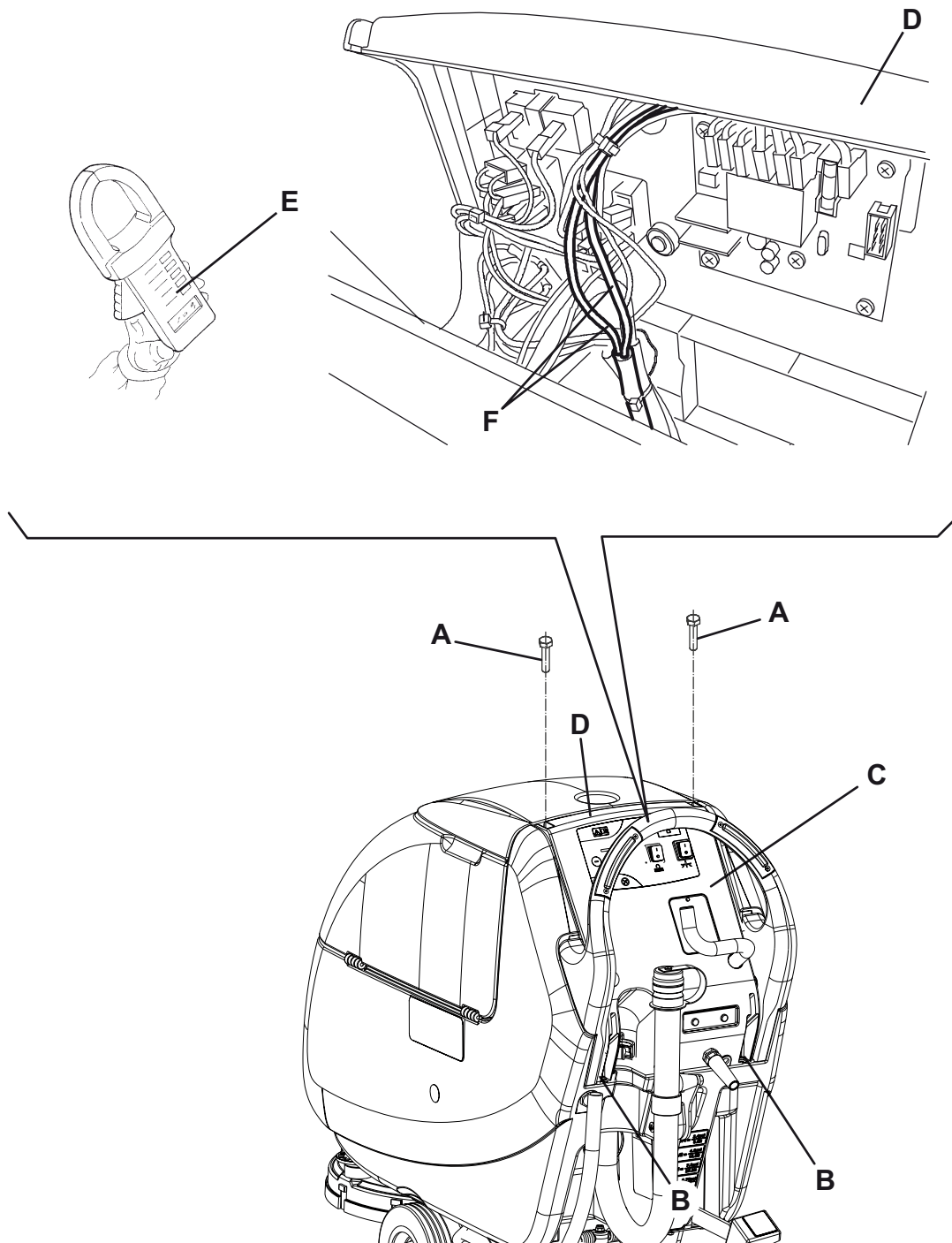
**Check**

1. Remove the brush, as shown in the User Manual.
2. Disconnect the power supply cable (59) from the electrical mains but do not place it on the holder (60).
3. If the power supply cable (59) is on the holder (60), remove it.
4. Move aside the recovery water drain hose (16).
5. Remove the mounting screws (A) of the panel (C).
6. Loosen the mounting screws (B) of the panel (C).
7. Carefully move backwards the upper end (D) of the panel (C).
8. Apply the amperometric pliers (E) on one cable (F) (connection symbols: "F4" or "F5") of the brush motor.
9. Connect the power supply cable (59) to the electrical mains.
10. Turn on the brush by pressing the switch (62) and check that the motor electrical input is 3 - 4 A at 230 V. Turn off the brush by pressing the switch (62).  
Disconnect the power supply cable (59) from the electrical mains.  
Remove the amperometric pliers (E).  
If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:
  - Check if there is dust or dirt (ropes, cables, etc.) on the brush hub.
  - Check the motor carbon brushes (see the procedure in the relevant paragraph).If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

11. Perform steps 3 to 7 in the reverse order.



**BRUSHING SYSTEM****BRUSH MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545E, 553E, 653E) (Continues)**

P100152

## BRUSHING SYSTEM

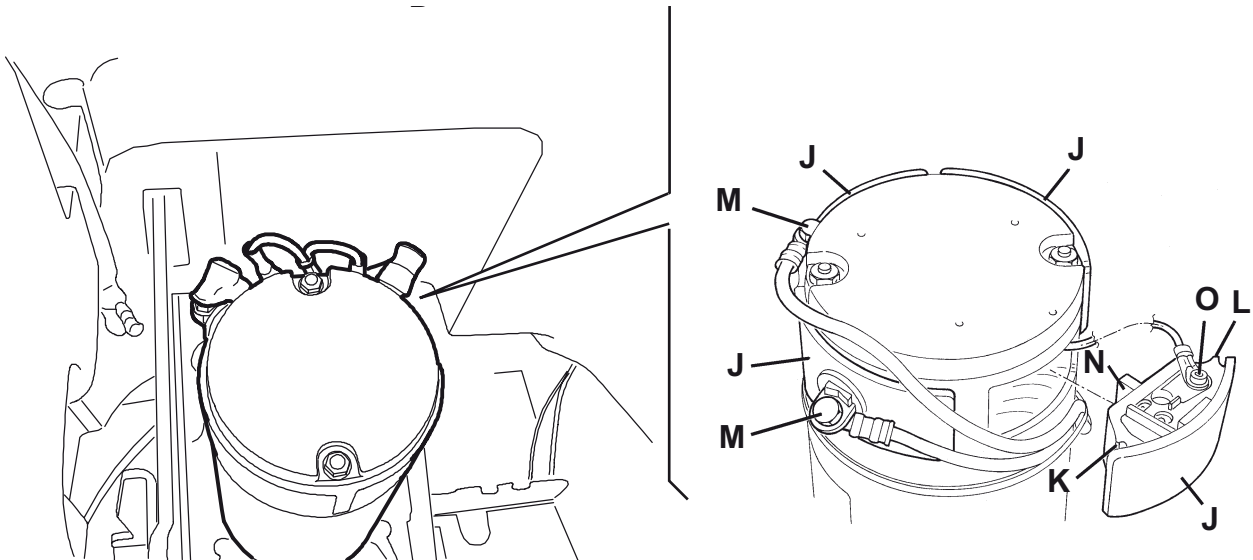
## BRUSH MOTOR CARBON BRUSH CHECK/REPLACEMENT (SCRUBTEC 545B, 545BL, 553B, 553BL)

**Check**

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Remove the brush/pad-holder.
4. Lower the deck by pressing the pedal (11).
5. Turn the ignition key (80) to "0".
6. Carefully lift the tank (40).
9. Disconnect the battery connector (12).
10. Remove dust and dirt from the motor carbon brush support area (A).
11. Disengage the fasteners (K) and (L) and remove four carbon brush supports (J). If necessary, disconnect the electrical connections (M).
12. Check the carbon brushes (N) for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.
13. If necessary, disconnect the connections (O) and remove the carbon brushes with their supports (J) and replace them. Replace the carbon brushes as an assembly.

**Reset**

12. Assemble the components in the reverse order of disassembly, and note the following:
  - When connecting the terminals (O), take care of their insulation from the surrounding parts of the frame.



S301539

## BRUSHING SYSTEM

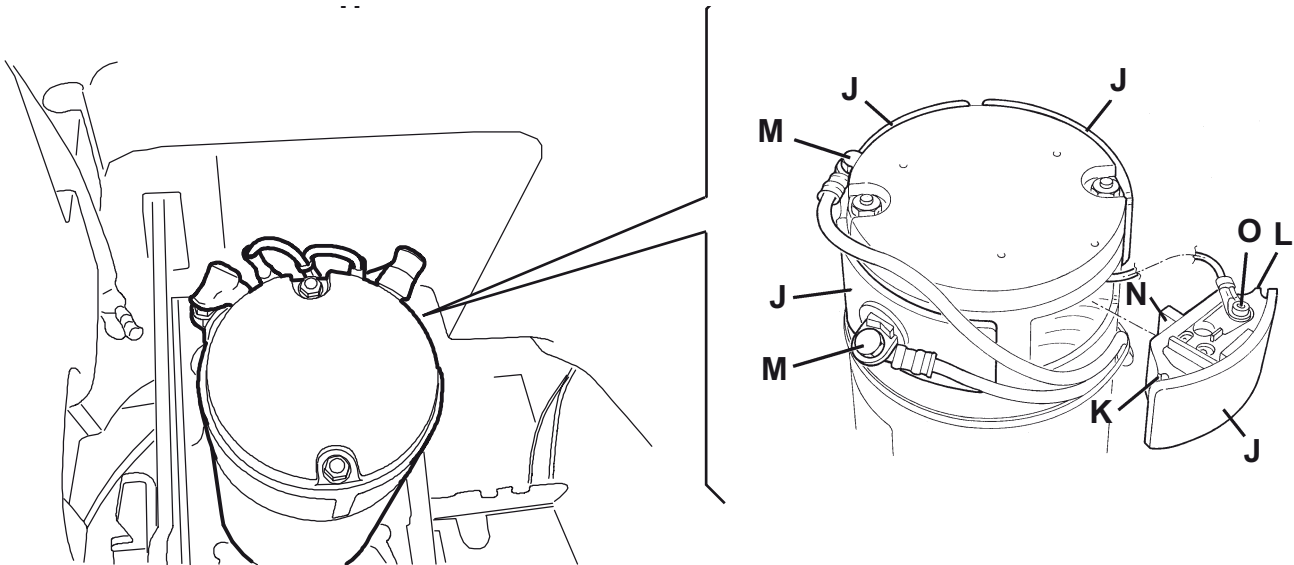
### BRUSH MOTOR CARBON BRUSH CHECK/REPLACEMENT (SCRUBTEC 653B, 653BL)

#### Check

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Remove the brush/pad-holder.
4. Lower the deck by pressing the pedal (11).
5. Turn the ignition key (80) to "0".
6. Carefully lift the tank (40).
7. Disconnect the battery connector (12).
8. Remove dust and dirt from the motor carbon brush support area (A).
9. Disengage the fasteners (K) and (L) and remove four carbon brush supports (J). If necessary, disconnect the electrical connections (M).
10. Check the carbon brushes (N) for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.
11. If necessary, disconnect the connections (O) and remove the carbon brushes with their supports (J) and replace them. Replace the carbon brushes as an assembly.

#### Reset

12. Assemble the components in the reverse order of disassembly, and note the following:
  - When connecting the terminals (O), take care of their insulation from the surrounding parts of the frame.



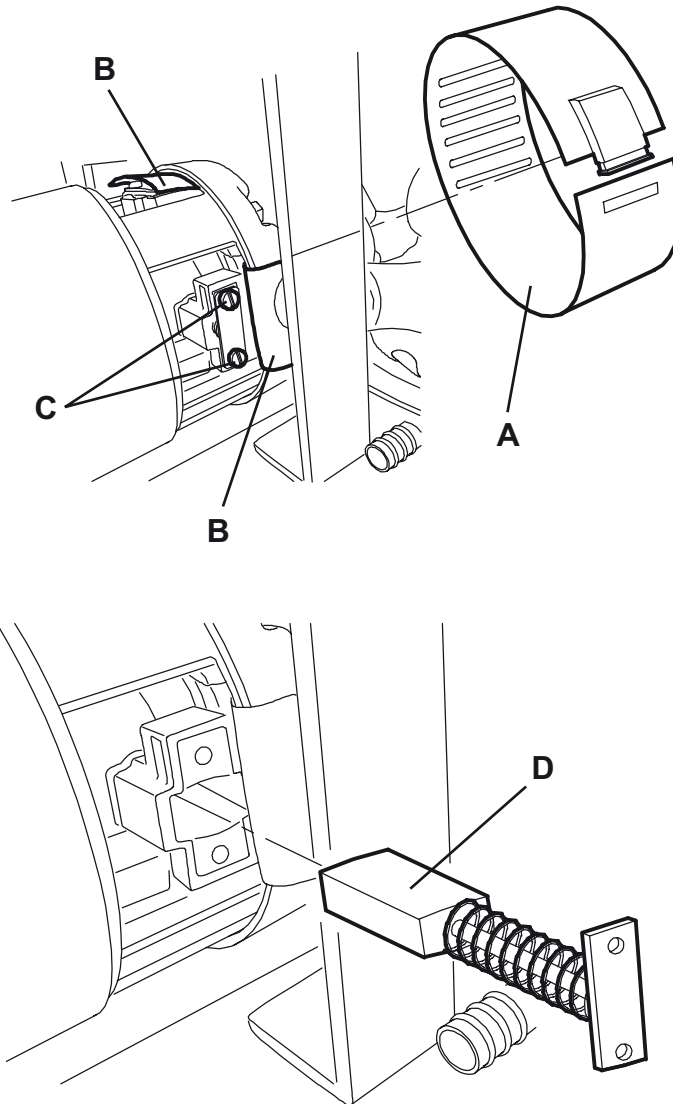
S301541

**BRUSHING SYSTEM****BRUSH MOTOR CARBON BRUSH CHECK/REPLACEMENT (SCRUBTEC 651BCL)****Check**

1. Remove the brush motor (see the procedure in the relevant paragraph).
2. At the workbench, remove dust and debris from the motor, especially in the area of the protection clamp (A).
3. Remove the protection clamp (A).
4. For each carbon brush, move the protection (B) and remove the screws (C).
5. Remove the carbon brushes (D).
6. Check the carbon brushes (D) for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.  
Replace the carbon brushes as an assembly.

**Reset**

7. Assemble in the reverse order of disassembly.



S301542

## BRUSHING SYSTEM

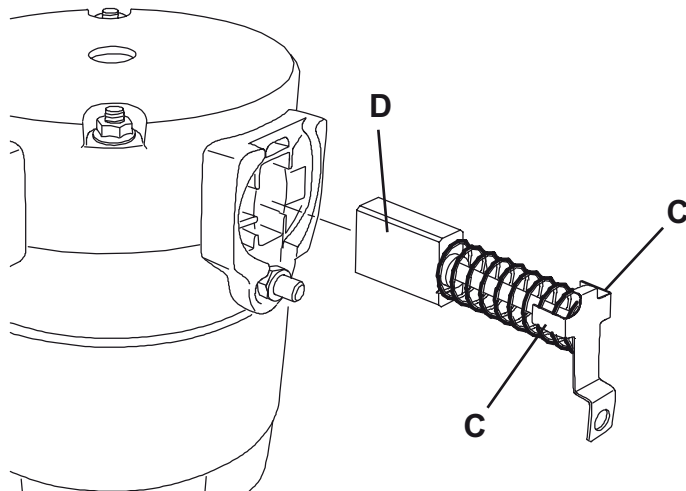
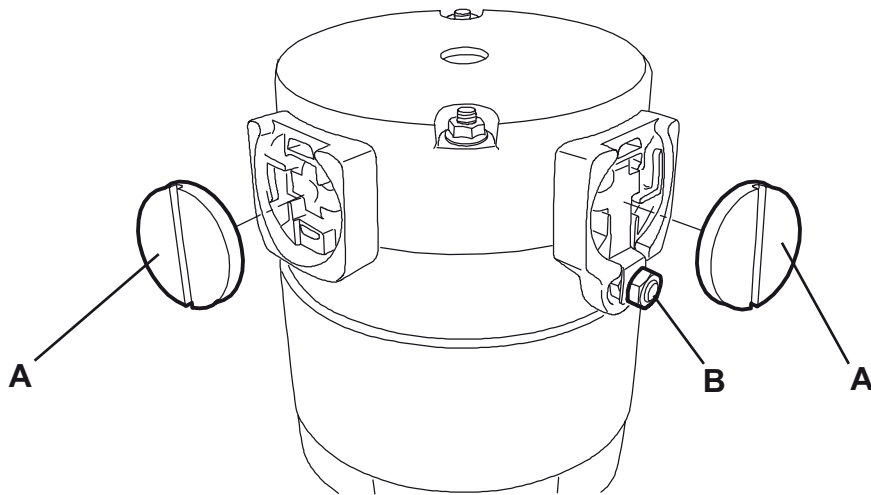
### BRUSH MOTOR CARBON BRUSH CHECK/REPLACEMENT (SCRUBTEC 661BL)

#### Check

1. Remove the cylindrical brush deck (see the procedure in the relevant paragraph).
2. At the workbench, remove dust and debris from the motor, especially in the area of the carbon brushes.
3. Remove four protection covers (A) by disengaging the fasteners.
4. Remove the carbon brush nuts (B) with the lead-in wires.
5. Disengage the tabs (C) and remove the carbon brushes (D).
6. Check the carbon brushes (D) for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.  
Replace the carbon brushes as an assembly.

#### Reset

7. Assemble in the reverse order of disassembly.



S301543

## BRUSHING SYSTEM

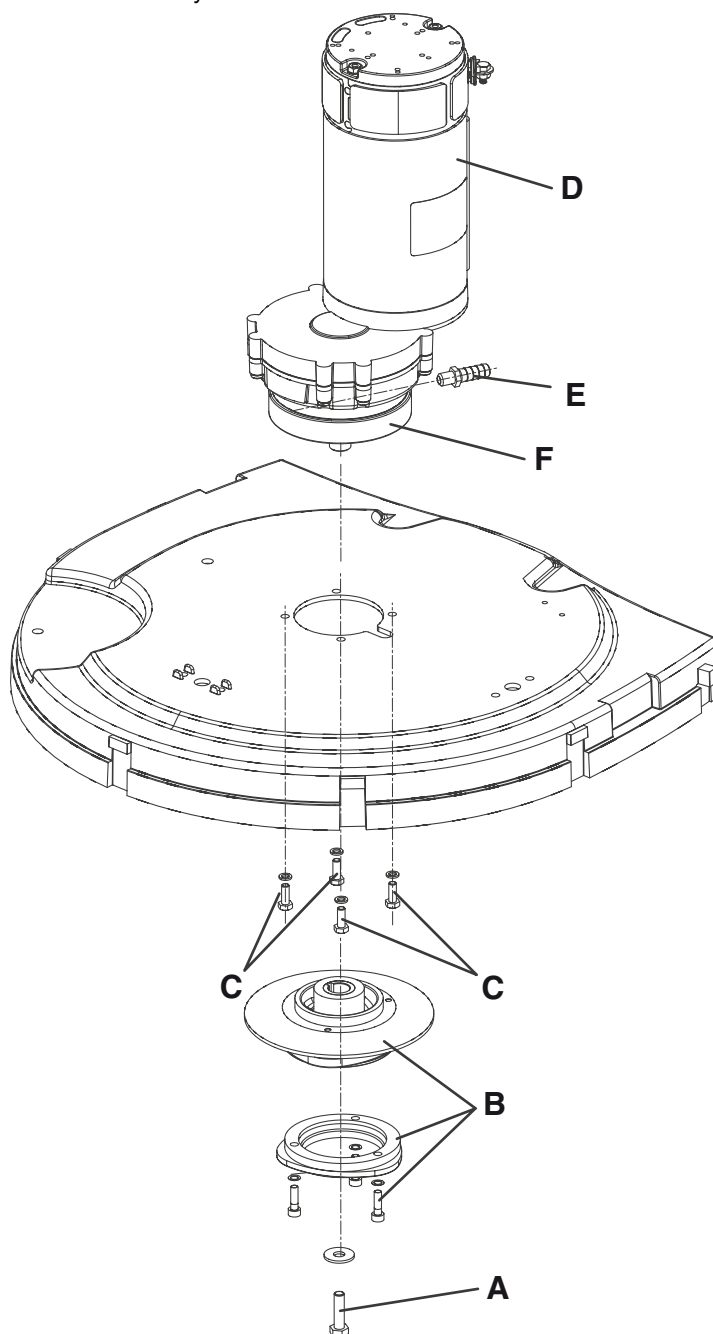
## BRUSH MOTOR DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL, 553B, 553BL, 653B, 653BL)

**Disassembly**

1. Remove the brush/pad-holder deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the screw (A) from the deck.
3. Remove the hub assembly (B) with a puller.
4. Remove the screws (C).
5. Remove the reduction unit (D).
6. If necessary, remove the water distribution union (E) and flange (F) from the reduction unit.

**Assembly**

7. Assemble in the reverse order of disassembly.



S301544



## BRUSHING SYSTEM

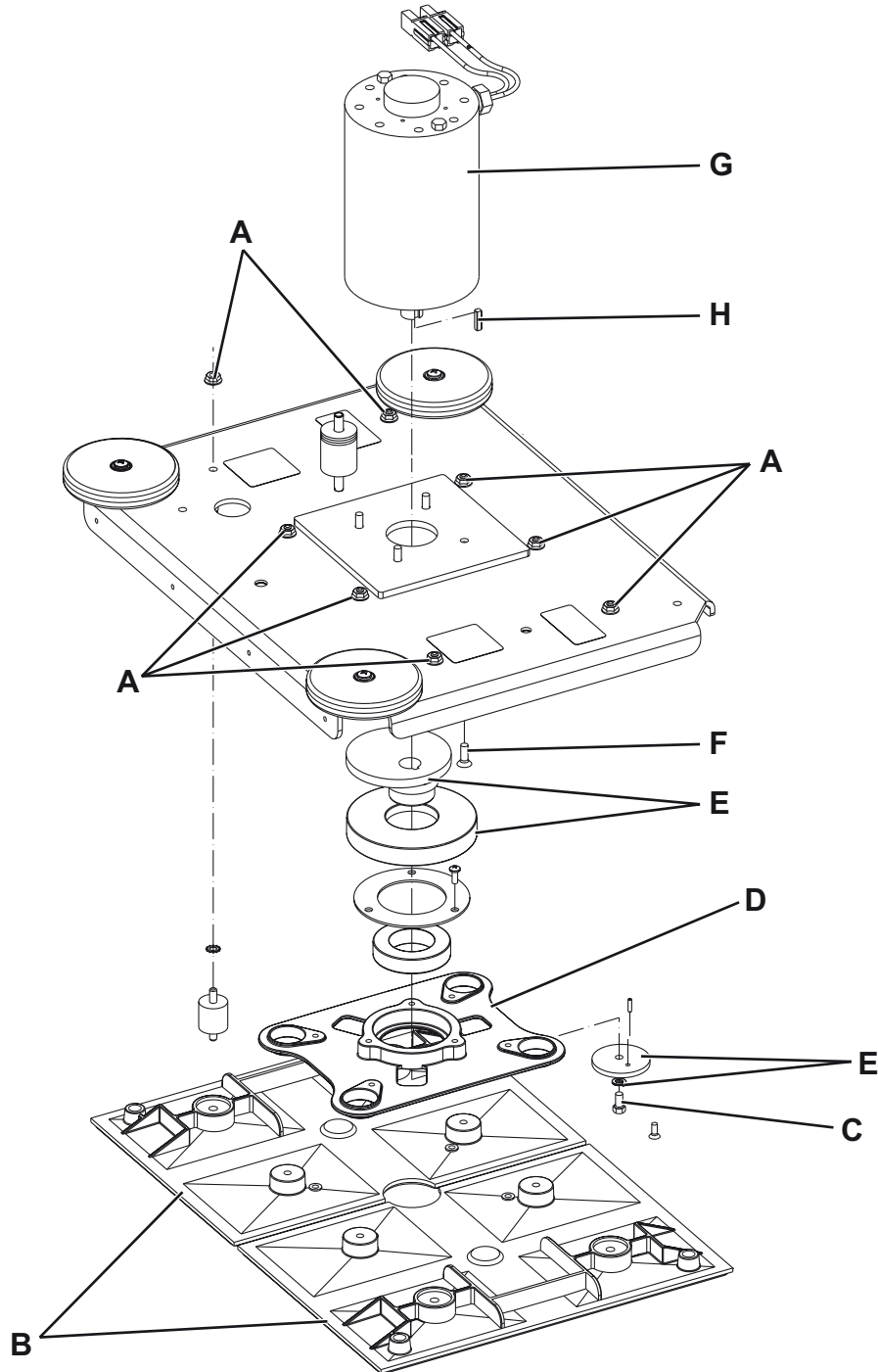
### BOOST DECK MOTOR DISASSEMBLY/ASSEMBLY (SCRUBTEC BOOST 5)

#### Disassembly

1. Remove the Boost deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the nuts (A) and remove the flex plates (B).
3. Remove the screw (C) and remove the plate driver (D).
4. Keep the retainer eccentric, the pin roll, the chiel boost bearing, washers and eccentric (E)
5. Remove the screws (F).
6. Remove the reduction motor (G) keeping the key (H).

#### Assembly

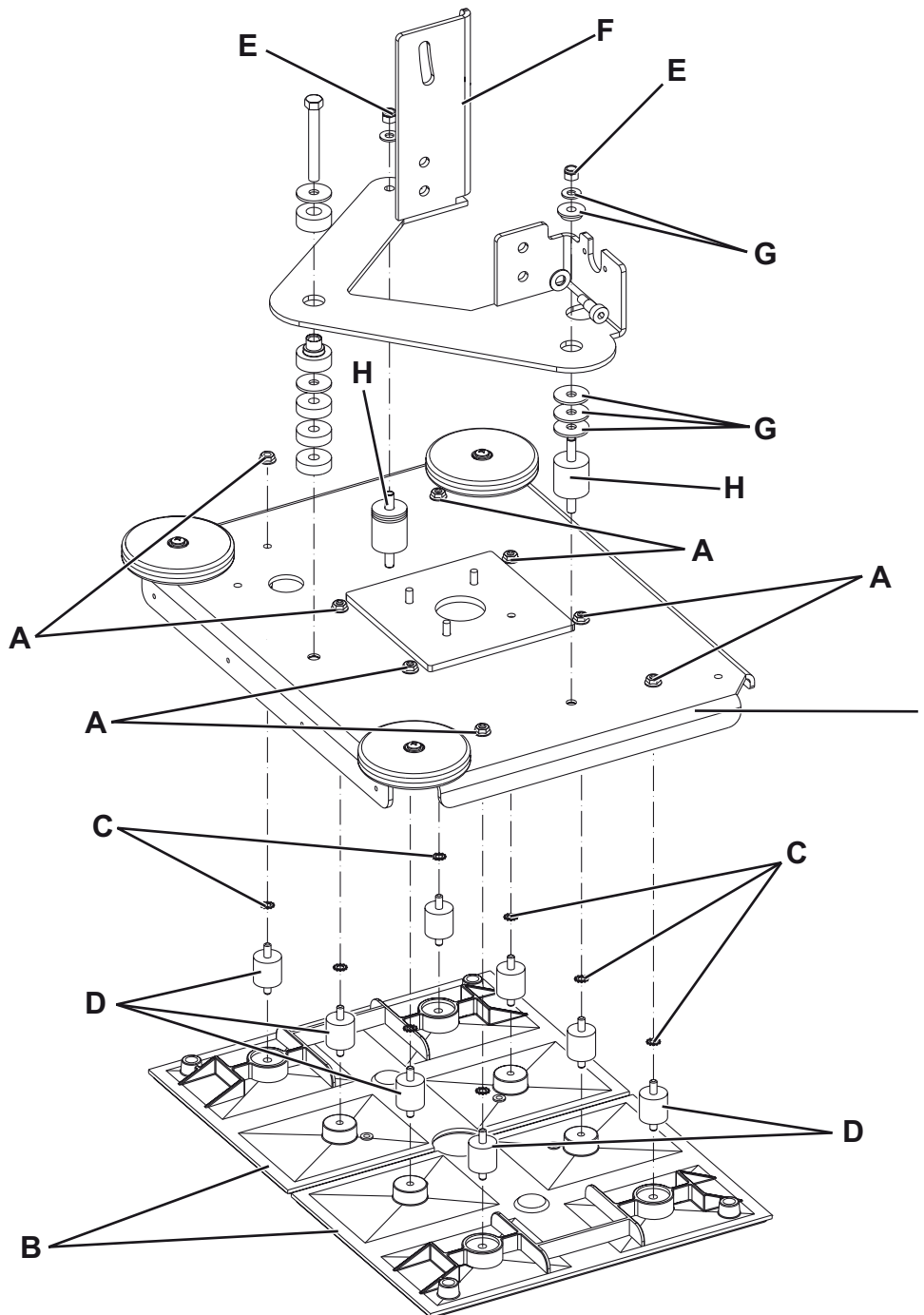
7. Assemble the components in the reverse order of disassembly, and note the following:
  - Tighten the screws (F) and the screw (C) at 10,32 lbf·ft (14 N·m; 1,42 kgf·m).
  - Tighten the nuts (A) at 8 lbf·ft (10,8 N·m; 1,10 kgf·m).



## BRUSHING SYSTEM

**BOOST DECK VIBRATION-DAMPERS DISASSEMBLY/REPLACEMENT (SCRUBTEC BOOST 5)**

1. Remove the Boost deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the nuts (A) and remove the flex plates (B). Keep the washers (C).
3. Remove the vibration-dampers (D) unscrewing them from the flex plates (B).
4. Assembly the new vibration-dampers as well as the flex plates, and note the following:
  - Tighten the nuts (A) at 8 lbf·ft (10,8 N·m; 1,10 kgf·m).
5. Remove the nuts (E) and remove the brush deck holder plate (F).
6. Keep the washers (G).
7. Remove the vibration-dampers (H) unscrewing them from the main plate (I).
8. Assembly the new vibration-dampers as well as the brush deck holder plate, and note the following:
  - Tighten the nuts (E) at 8 lbf·ft (10,8 N·m; 1,10 kgf·m).



## BRUSHING SYSTEM

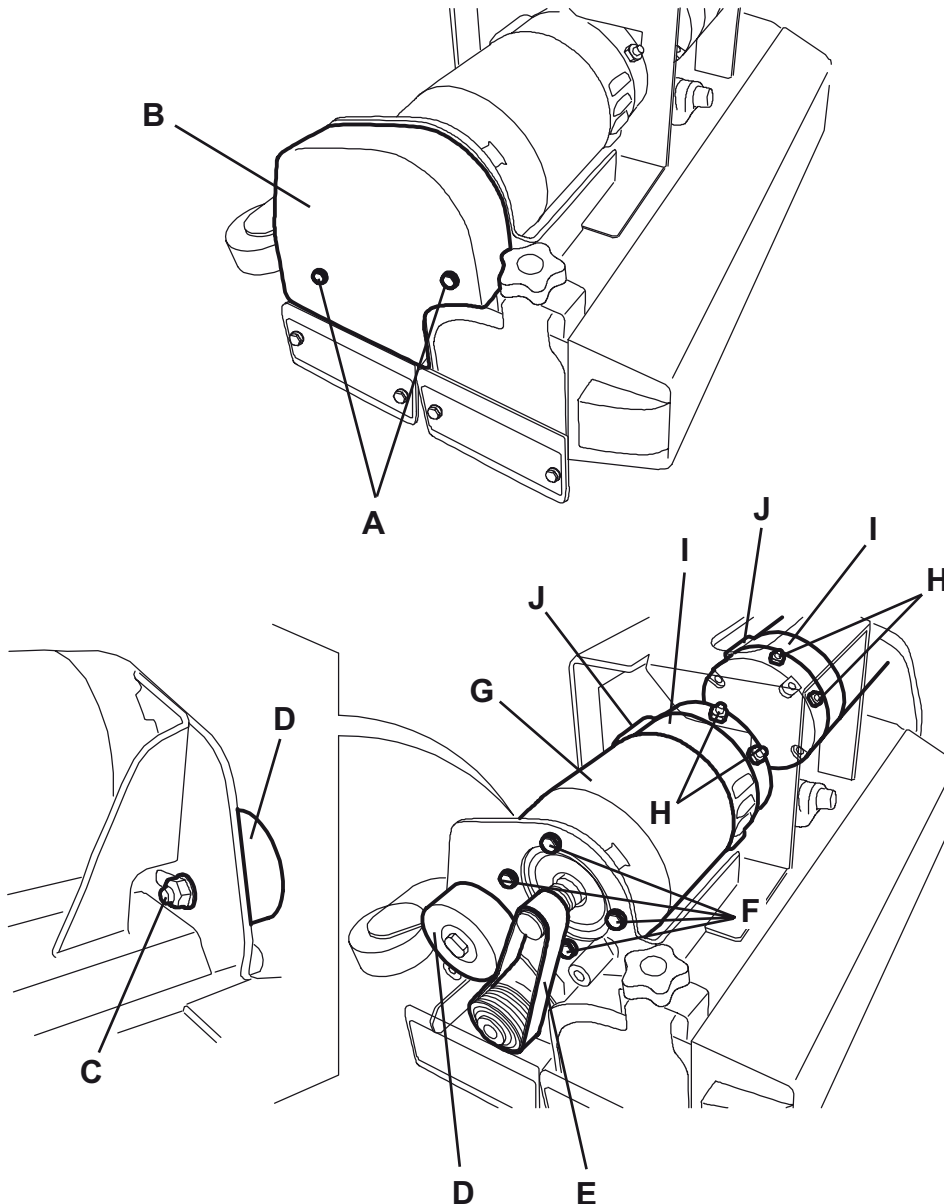
### BRUSH MOTOR DISASSEMBLY/ASSEMBLY (SCRUBTEC 651BCL)

#### Disassembly

1. Remove the cylindrical brush deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the screw (A) from the motor which has to be disassembled.
3. Remove the case (B).
4. Loosen the nut (C) and move the pulley (D) to loosen the belt (E).
5. Remove the belt (E).
6. Remove the screws (F).
7. Remove the motor (G).

#### Assembly

8. Assemble the components in the reverse order of disassembly, and note the following:
  - The electrical connections (H) of the motor (G) must be turned upwards.
  - The connection (J) of the carbon brush protection clamps (I) must be positioned as shown in the figure.
  - Install the belt (E) and tension it properly (see the procedure in the relevant paragraph).



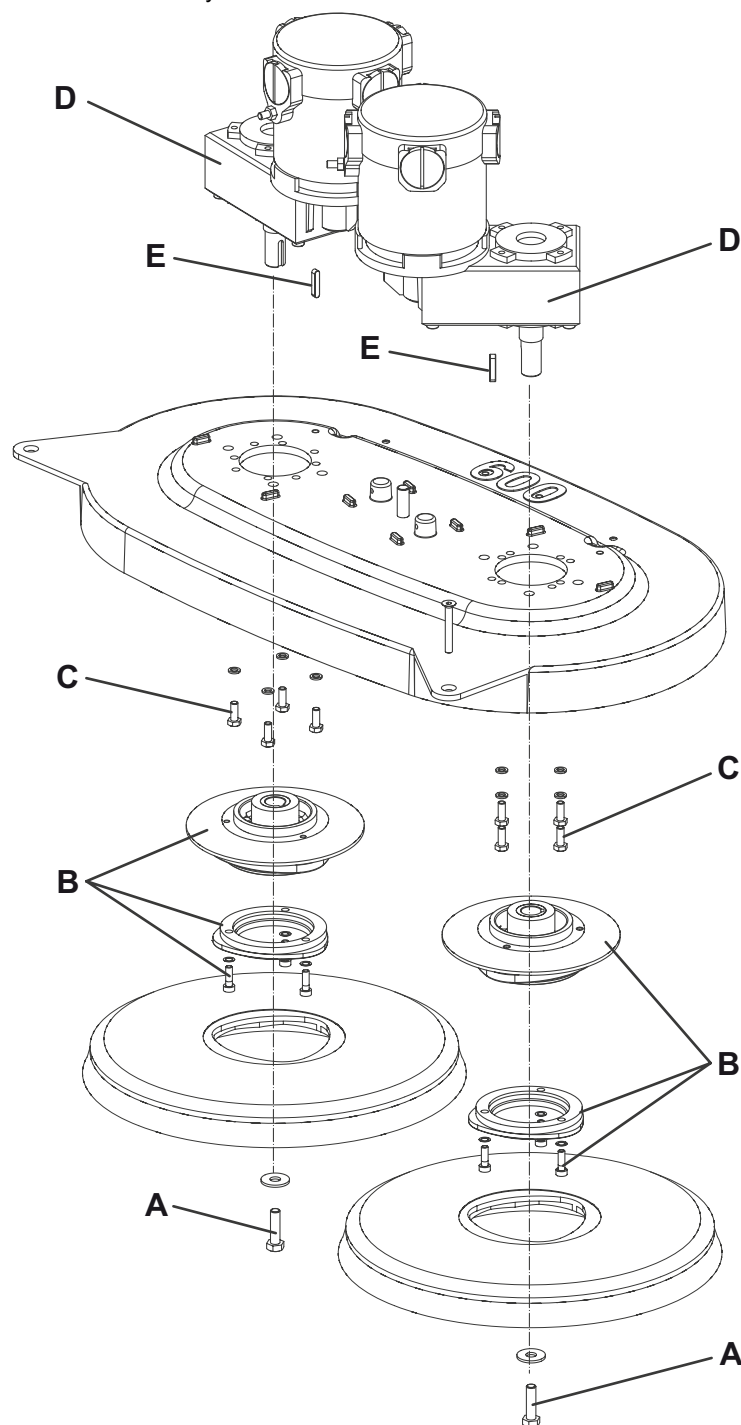
S301545

**BRUSH MOTOR DISASSEMBLY/ASSEMBLY (SCRUBTEC 661BL)****Disassembly**

1. Remove the brush/pad-holder deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the screw (A) from the reduction unit which has to be disassembled.
3. Remove the hub assembly (B) with a puller.
4. Remove the screws (C).
5. Remove the reduction unit (D).
6. Recover the key (E).

**Assembly**

7. Assemble in the reverse order of disassembly.



S301546

## BRUSHING SYSTEM

### BRUSH MOTOR DISASSEMBLY/ASSEMBLY (SCRUBTEC 545E, 553E, 653E)

#### Disassembly

1. Remove the brush/pad-holder deck (see the procedure in the relevant paragraph).
2. At the workbench, remove the screw (A).
3. Remove the hub assembly (B) with a puller.
4. Remove the screws (C).
5. Remove the reduction unit (D) with the relevant wiring harness.
6. Recover the key (E).
7. If necessary, remove the solution hose (E).
8. If necessary, remove the motor wiring harness (G).

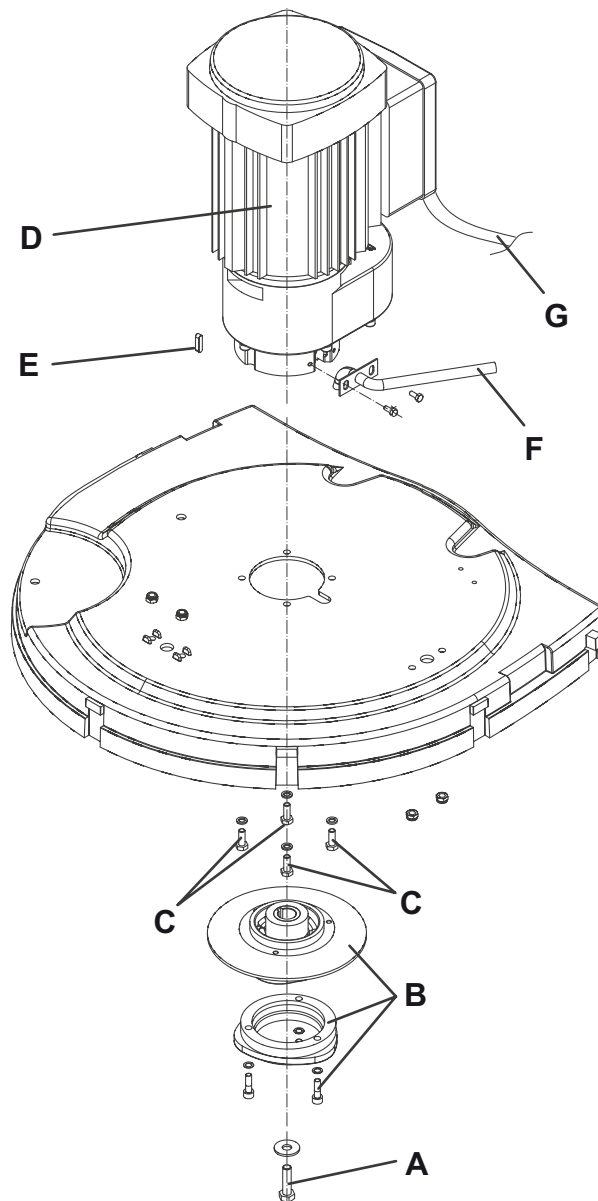
#### Assembly

9. Assemble in the reverse order of disassembly.



**NOTE**

Figure showing 653E



S301547

**BRUSHING SYSTEM****CHECK/REPLACEMENT/ADJUSTMENT OF DRIVING BELTS BETWEEN MOTORS AND CYLINDRICAL BRUSHES (SCRUBTEC 651BCL)****Check**

1. Drive the machine on a level floor.
2. Turn the ignition key (12) to "0".
3. Lower the cylindrical brush deck by pressing the pedal (11).
4. Remove the screws (A) and remove the covers (B).
5. Visually inspect the belt (C) for integrity, cuts, tears or cracks, if necessary replace it according to the following procedure.
6. Check the tension of the belt (C) according to the following procedure.

**Replacement**

7. If the belt (G) is to be replaced, loosen the nut (D) and move the pulley (K) to loosen the belt.
8. Tension the belt (according to the following procedure).

**Belt tensioning**

9. Check the tension of the belt (C) between motor and brush. The tension is correct:
  - When pressing the belt in its centre with a force of 22 lb (10 kg) (F), the belt bends for 0.20 in (5 mm).If necessary, tension the belt according to the following procedure:
10. Loosen the nut (D) and adjust the position of the pulley (E). When tensioning procedure has been performed, tighten the nut (D).
11. Repeat step 8.

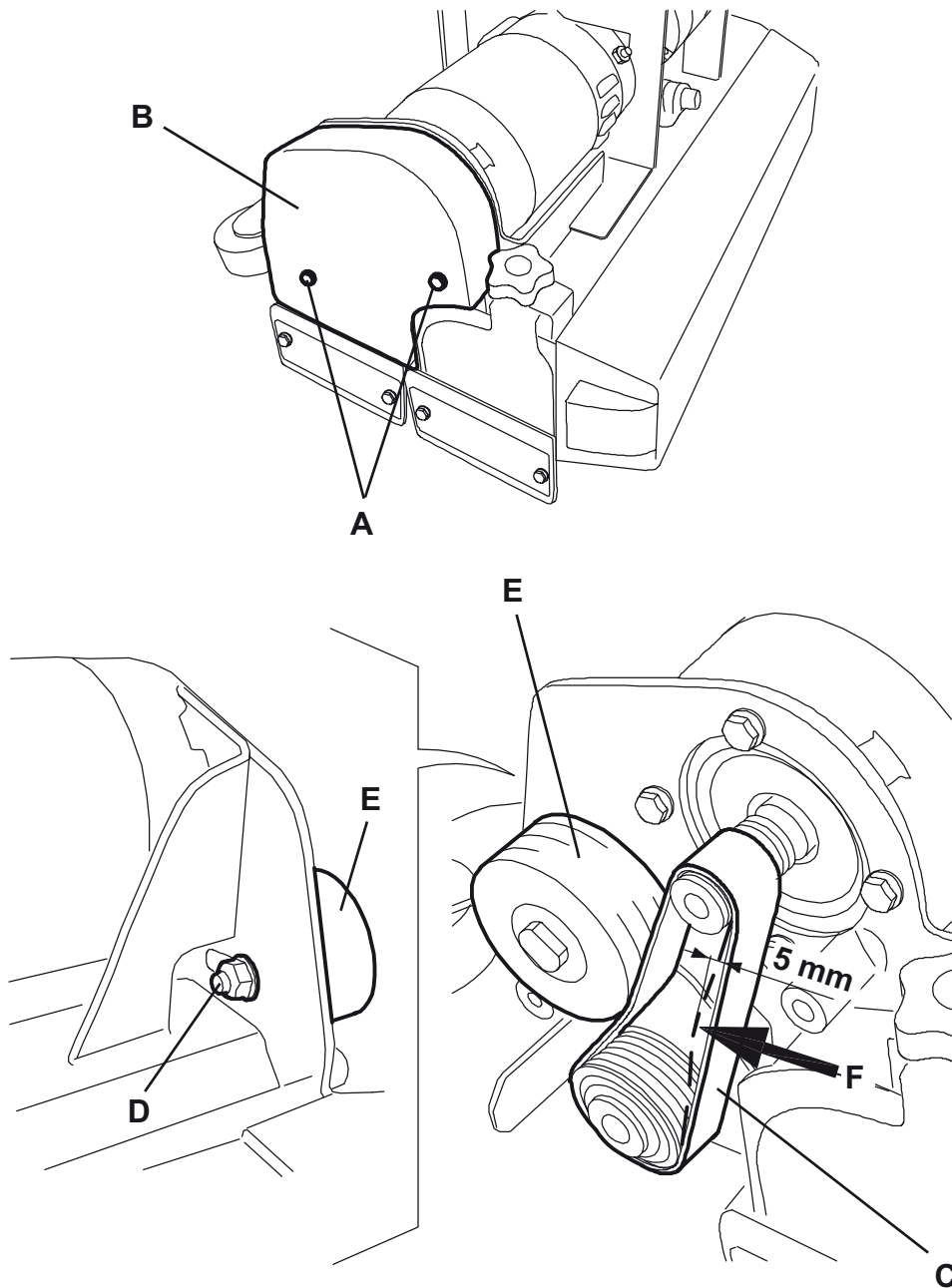
**Reset**

12. Perform steps 3 and 4 in the reverse order.



## BRUSHING SYSTEM

### CHECK/REPLACEMENT/ADJUSTMENT OF DRIVING BELTS BETWEEN MOTORS AND CYLINDRICAL BRUSHES (SCRUBTEC 651BCL) (Continues)



S301548

**BRUSHING SYSTEM****TROUBLESHOOTING****All brushes do not turn**

Possible causes:

1. The brush enabling microswitch is misadjusted or broken (adjust or replace).
2. The wiring harness between microswitch and function electronic board is damaged (repair).
3. The brush motor electromagnetic switch wiring harness is damaged (repair).
4. The function electronic board is damaged (replace).
5. The wiring harness between function electronic board and brush motor electromagnetic switch is damaged (repair).
6. The brush motor electromagnetic switch is damaged (replace).
7. The brush motor fuse is open (replace).

**One brush does not turn (For models with two brushes)**

Possible causes:

1. The motor carbon brushes are worn (replace).
2. Bulky debris or cords around the brushes or between the brushes and its flange (remove and clean the brushes).
3. The motor is faulty (repair or replace).
4. The wiring harness is damaged (repair).

## RECOVERY WATER SYSTEM

## RECOVERY WATER SYSTEM

### RECOVERY WATER TANK AND VACUUM GRID CLEANING, AND COVER GASKET CHECK (All models)

1. Drive the machine to the appointed recovery water disposal area.
2. (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL). Turn the ignition key (80) to "0". (SCRUBTEC 545E, 553E, 653E). Disconnect the power supply cable (59) from the electrical mains.
3. Lift the cover (A) to washing position (L).
4. Wash with clean water the cover (A), the tank (B) and the vacuum grid with automatic shut-off float (D). Drain the water in the tank through the hose (16).
5. If necessary, release the fasteners (E) and open the grid (D), recover the float (F), clean all the components and then reinstall them.
6. Check the tank cover gasket (G) for integrity.


**NOTE**

The gasket (G) creates vacuum in the tank that is necessary for vacuuming the recovery water.

If necessary replace the gasket (G) by removing it from its housing (H). When assembling the new gasket, install the joint (I) in the rear central area, as shown in the figure.

7. Check that the seating surface (J) of the gasket (G) is integral and adequate for the gasket itself.

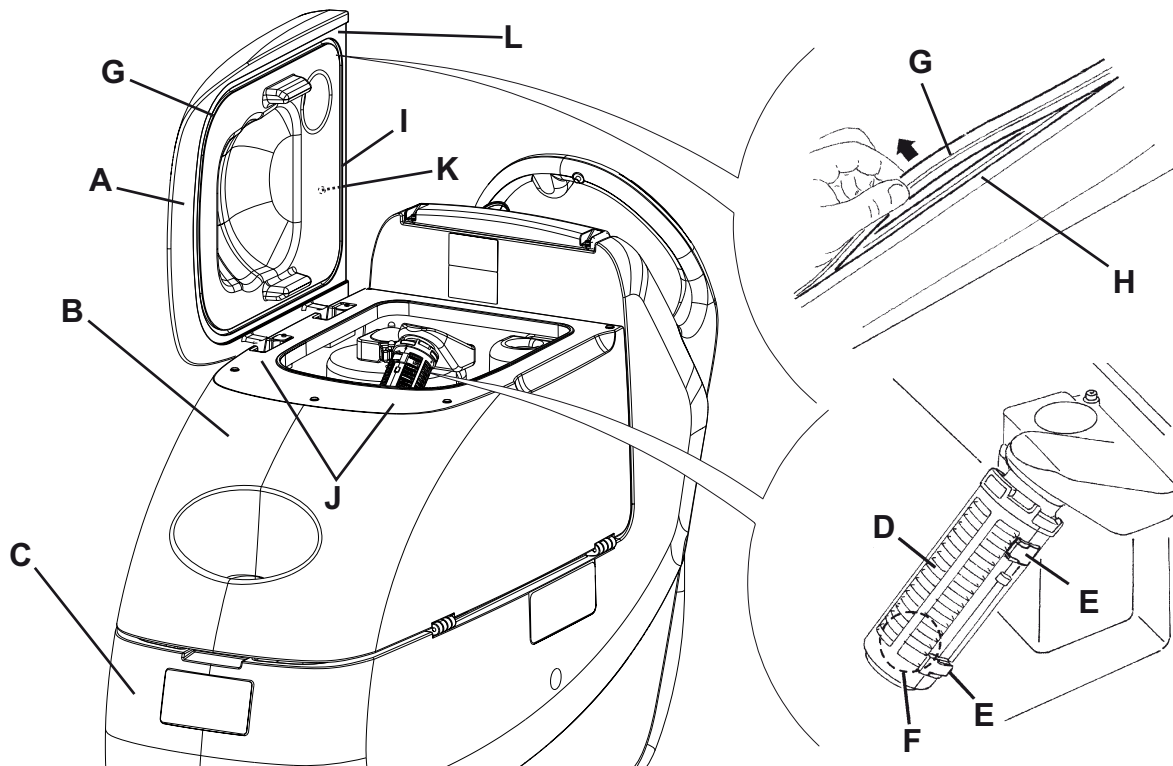

**NOTE**

The hole (K), allowing to compensate the air in the cover air gap, contributes to create vacuum in the tank.

8. Close the cover (A).


**NOTE**

Figure showing 653BL



P100119

## RECOVERY WATER SYSTEM

## SQUEEGEE CLEANING/CHECK/REPLACEMENT AND SQUEEGEE BLADE REPLACEMENT (All models)

**CAUTION!**

*It is advisable to wear protective gloves when cleaning the squeegee because there may be sharp debris.*

**Disassembly and cleaning**

1. Drive the machine on a level floor.
2. (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0". (**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
3. Lower the squeegee (25) with the lever (10).
4. Loosen the handwheels (26) and remove the squeegee (25).
5. Disconnect the vacuum hose (15) from the squeegee.
6. Clean the steel squeegee (Fig. 1) or the aluminium squeegee (Fig. 2). Clean the compartments (A, Fig. 1 or 2) and the hole (B) especially. Check the front blade (C) and the rear blade (D) for integrity, cuts and tears; if necessary replace them (see the procedure in the following paragraph).
7. Install the squeegee in the reverse order of removal.

**Check and replacement**

1. Clean the steel squeegee (Fig. 1) or the aluminium squeegee (Fig. 2), as shown in the previous paragraph.
2. Check that the edges (E, Fig. 1 or 2) of the front blade (C) and the edges (F) of the rear blade (D) lay down on the same level, along their length; otherwise adjust their height according to the following procedure:
  - Release the tie rod (G, Fig. 1 or 2) and loosen the wing nuts (H, Fig. 1), or disengage the fasteners (M, Fig. 2) and adjust the rear blade (D, Fig. 1 or 2), then tighten the wing nuts, or engage the fasteners, and then engage the tie rod.
  - Loosen the handwheels (I) and adjust the front blade (C, Fig. 1 or 2); then tighten the handwheels.
3. Check the front blade (C, Fig. 1 or 2) and rear blade (D) for integrity, cuts and tears; if necessary replace them according to the following procedure. Check that the front corner (J) of the rear blade is not worn; otherwise, overturn the blade to replace the worn corner with an integral one. If the other corners are worn too, replace the blade according to the following procedure:
  - Release the tie rod (G), remove the wing nuts (H) or disengage the fasteners (M), remove the retaining strip (K), then replace/overturn the rear blade (D). Then install the blade in the reverse order of removal.
  - Unscrew the handwheels (I) and remove the retaining strip (L), then replace the front blade (C). Install the blade in the reverse order of removal.

After the blade replacement (or overturning), adjust the height as shown in the previous step.
4. Connect the vacuum hose (15) to the squeegee.
5. Install the squeegee (25) and screw down the handwheels (26).
6. If necessary, adjust the squeegee balance adjusting handwheel (27).

# RECOVERY WATER SYSTEM

## SQUEEGEE CLEANING/CHECK/REPLACEMENT AND SQUEEGEE BLADE REPLACEMENT (All models) (Continues)

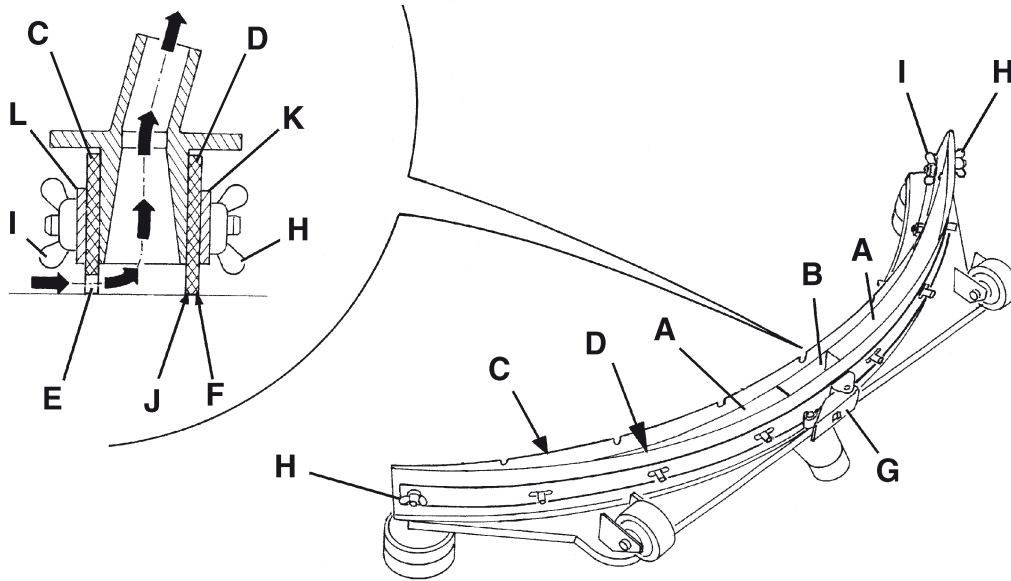


Fig. 1

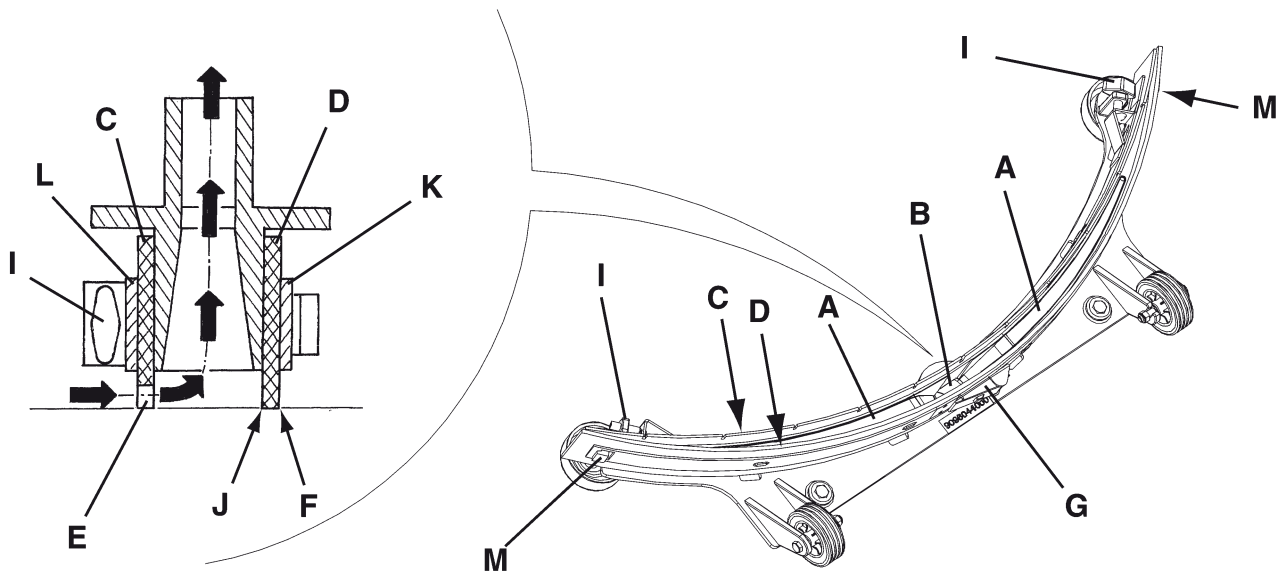


Fig. 2

S301552

## RECOVERY WATER SYSTEM

## VACUUM SYSTEM MOTOR FILTER CLEANING (All models)

## Disassembly and cleaning

1. If the tank (21) contains recovery water:
2. Drive the machine to the appointed recovery water disposal area.
3. (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0". (**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains. Empty the recovery water tank (21) with the hose (16).
4. Drive the machine on a level floor.
5. (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0". (**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
6. (**SCRUBTEC 545E, 553E, 653E**). Open the recovery water tank cover (22). Remove the retaining plate (61) of the tank (40).
7. Carefully lift the tank (40).
8. Remove the vacuum system motor filter (44) and clean it with water and compressed air.
9. Install the filter (44).

## Assembly

10. Assemble in the reverse order of disassembly.

**WARNING!**

(**SCRUBTEC 545E, 553E, 653E**). *When the maintenance/repair procedure is completed, the tank (40) must always be locked with the plate (61).*

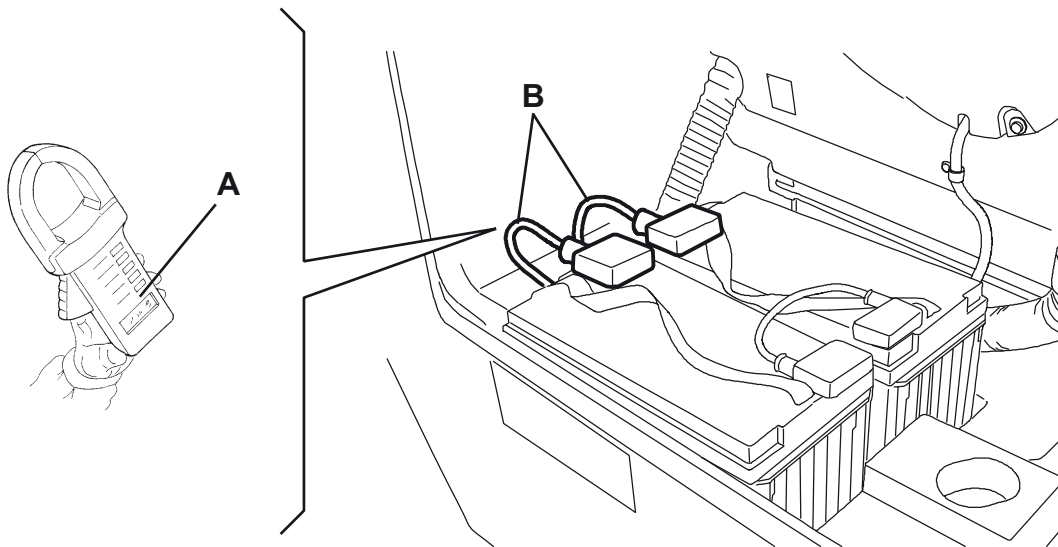
## RECOVERY WATER SYSTEM

### VACUUM SYSTEM MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)

**WARNING!**

*This procedure must be performed by qualified personnel only.*

1. If the tank (21) contains recovery water:  
Drive the machine to the appointed recovery water disposal area.  
Turn the ignition key (80) to "0".  
Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Turn the ignition key (80) to "0".
4. Disconnect the battery connector (12).
5. Carefully lift the tank (40).
6. Apply the amperometric pliers (A) on one cable (B) of the batteries.
7. Turn the ignition key (80) to "I".
8. Turn on the vacuum system by pressing the switch (73) and check that the motor electrical input is 16 - 19 A at 24 V.  
Turn off the vacuum system motor by pressing the switch (73).  
Remove the amperometric pliers (B).  
If the electrical input exceeds the specifications, check the motor carbon brushes (see the procedure in the relevant paragraph).  
If necessary, disassemble the vacuum system motor (see the procedure in the relevant paragraph), and check the condition of its moving parts.  
If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).
9. Perform steps 4 and 5 in the reverse order.



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## RECOVERY WATER SYSTEM

## VACUUM SYSTEM MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545E, 553E, 653E)

**WARNING!**

*This procedure must be performed by qualified personnel only.*

**Check**

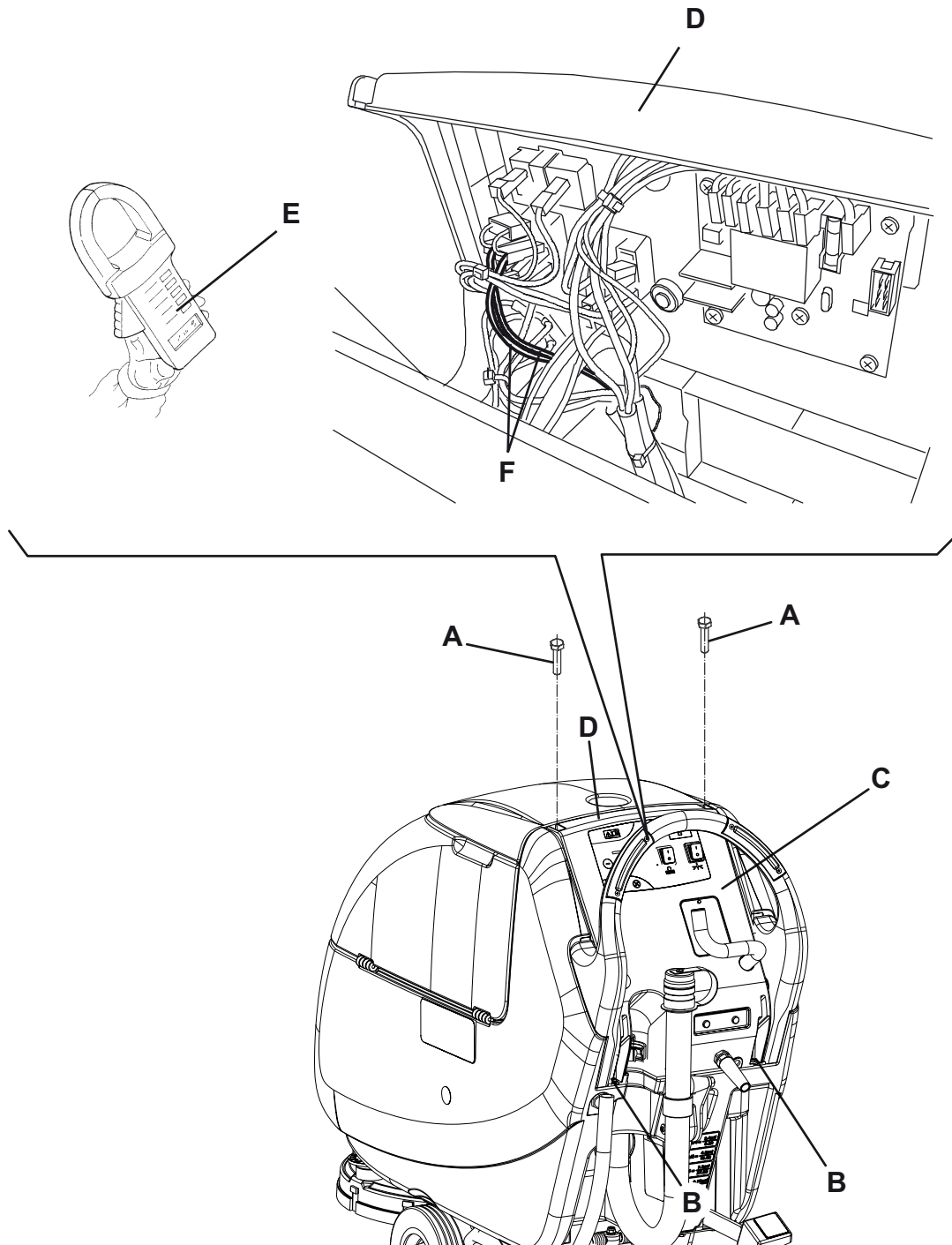
1. Remove the brush, as shown in the User Manual.
2. Disconnect the power supply cable (59) from the electrical mains but do not place it on the holder (60).
3. If the power supply cable (59) is on the holder (60), remove it.
4. Move aside the recovery water drain hose (16).
5. Remove the mounting screws (A) of the panel (C).
6. Loosen the mounting screws (B) of the panel (C).
7. Carefully move backwards the upper end (D) of the panel (C).
8. Apply the amperometric pliers (E) on one cable (F) of the vacuum system motor.
9. Connect the power supply cable (59) to the electrical mains.
10. Turn on the vacuum system by pressing the switch (63) and check that the motor electrical input is 2 - 2.5 A at 230 V. Turn off the vacuum system by pressing the switch (63).  
Disconnect the power supply cable (59) from the electrical mains.  
Remove the amperometric pliers (E).  
If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:
  - Check that the filter (44) is clean (see the procedure in the relevant paragraph).
  - Check that the vacuum grid with automatic shut-off float is clean (see the procedure in the relevant paragraph).
  - Check that the squeegee and the vacuum hose are clean (see the procedure in the relevant paragraph).
  - Check the motor carbon brushes (see the procedure in the relevant paragraph).If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).

**Reset**

11. Perform steps 3 to 7 in the reverse order.

# RECOVERY WATER SYSTEM

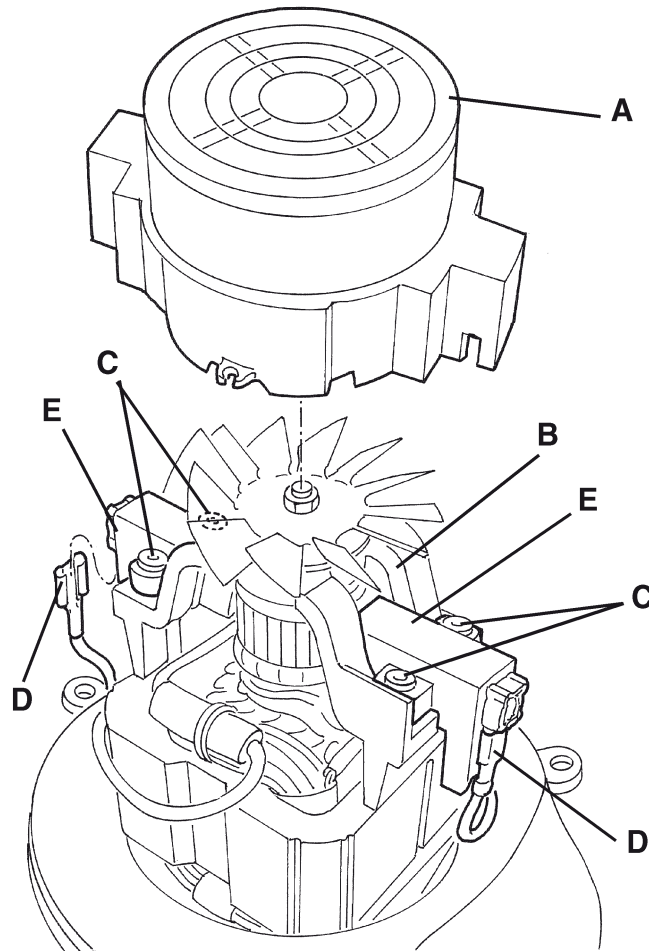
## VACUUM SYSTEM MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545E, 553E, 653E) (Continues)



S301554

**RECOVERY WATER SYSTEM****VACUUM SYSTEM MOTOR CARBON BRUSH CHECK/REPLACEMENT (All models)**

1. Remove the vacuum system motor (see the procedure in the relevant paragraph).
2. At the workbench, remove the cover (A) (press-fitted) from the vacuum system motor (B).
3. Remove the screws (C).
4. Disconnect the electrical connections (D).
5. Remove the carbon brushes (E).
6. Check the carbon brushes for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.
7. If necessary, replace the carbon brushes. Replace the carbon brushes as an assembly.
8. Assemble in the reverse order of disassembly.



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## RECOVERY WATER SYSTEM

### VACUUM SYSTEM MOTOR DISASSEMBLY/ASSEMBLY (All models)

#### Disassembly

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL). Turn the ignition key (80) to "0".
  - (SCRUBTEC 545E, 553E, 653E). Disconnect the power supply cable (59) from the electrical mains.
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL). Turn the ignition key (80) to "0".  
(SCRUBTEC 545E, 553E, 653E). Disconnect the power supply cable (59) from the electrical mains.
4. (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL). Disconnect the battery connector (12).
5. (SCRUBTEC 545E, 553E, 653E). Remove the retaining plate (61) of the tank (40).
6. Carefully lift the tank (40).
7. Remove the screws (A) and recover the washers.
8. Remove the motor cover (B).
9. Remove the filter (C) and the gasket (D).
10. Remove the motor (E) or (L), the sound-deadening pipe (F) and the sound-deadening panel (G).
11. (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL). Disconnect the electrical connector (H) of the motor (E).  
(SCRUBTEC 545E, 553E, 653E). Disconnect the electrical connections (J) and (K) of the motor (L).
12. Check the gasket (I) for efficiency and, if necessary, replace it.

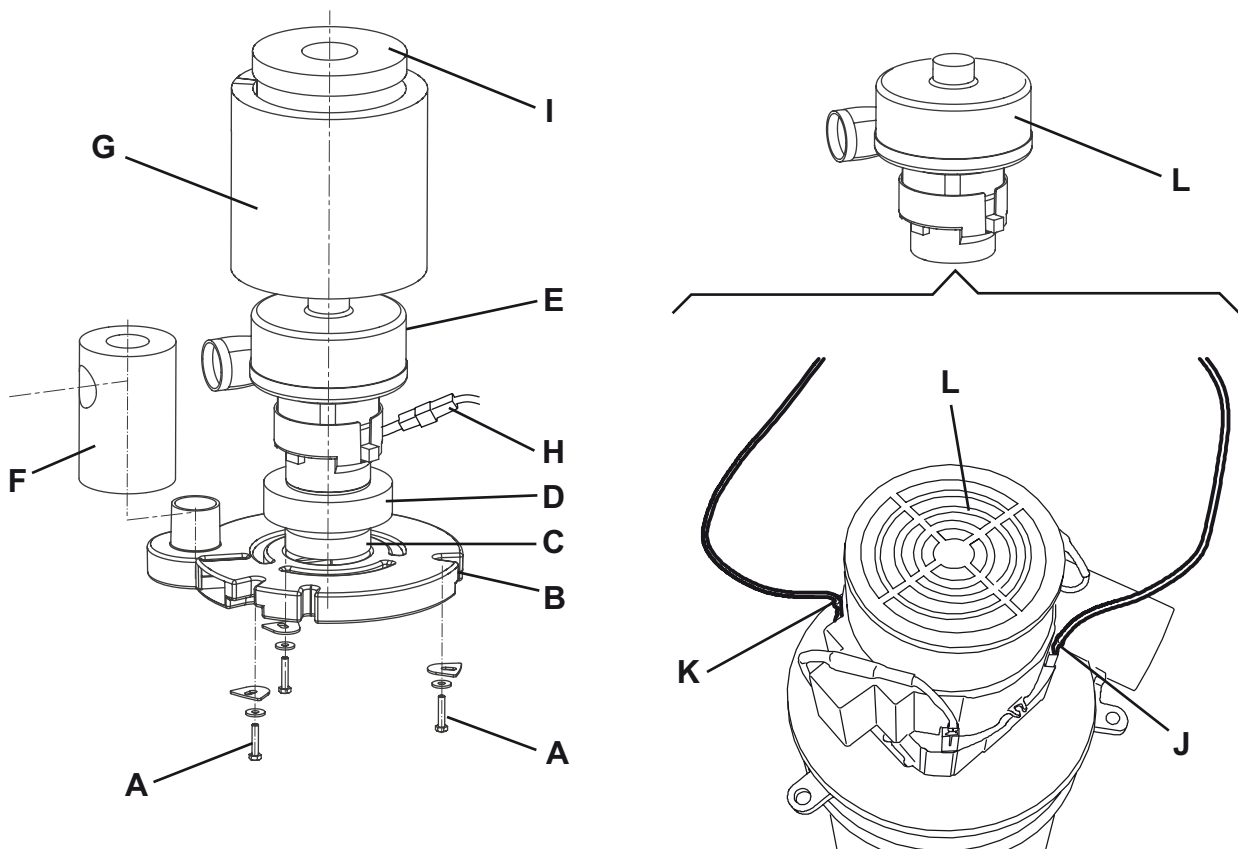
#### Assembly

13. Assemble the components in the reverse order of disassembly, and note the following:
  - If necessary, clean the filter (C) before assembling it (see the procedure in the relevant paragraph).



#### WARNING!

(SCRUBTEC 545E, 553E, 653E). When the maintenance/repair procedure is completed, the tank (40) must always be locked with the plate (61).



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## RECOVERY WATER SYSTEM

**SQUEEGEE SPRING CHECK/REPLACEMENT (All models, with aluminium squeegee)****Check**

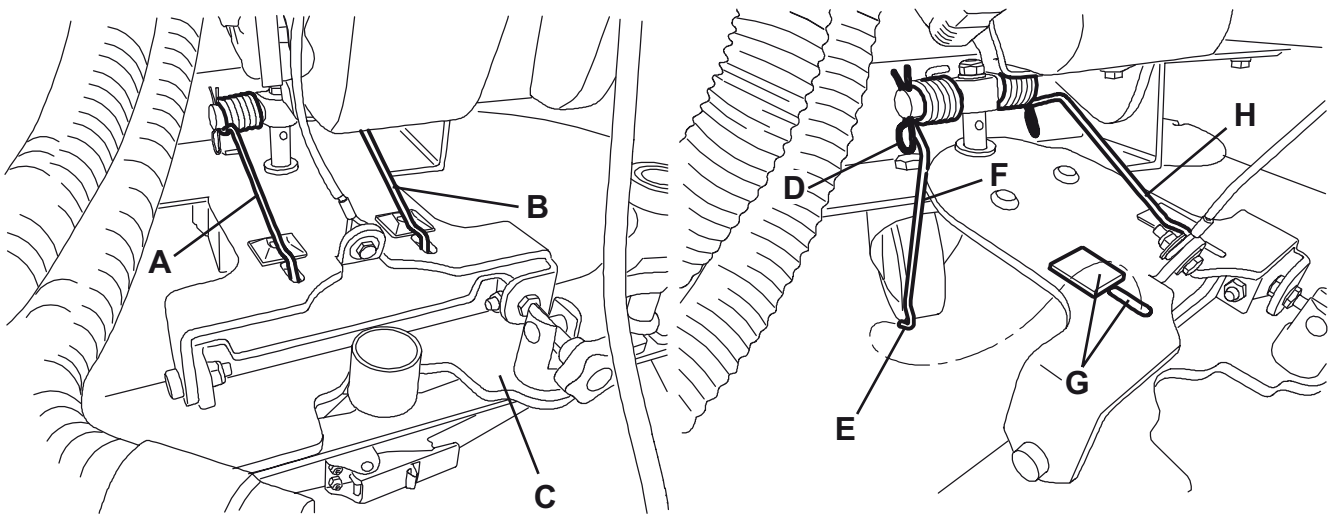
1. Drive the machine on a level floor.
2. (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0". (**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
3. Check that the springs (A) and (B) push the squeegee (C) on the floor correctly.
4. If necessary, disassemble and replace the springs according to the following procedure.

**Disassembly**

5. Remove the squeegee (see the procedure in the relevant paragraph).
6. Lift the deck by pressing the pedal (11).
7. Grasp the handlebar (2) and lower the front part of the machine.
8. Remove the cotter pin (D).
9. Disengage the end (E) of the left spring (F) from the housing (G).
10. Remove the left spring (F).
11. Repeat steps 8, 9 and 10 for the right spring (H).

**Assembly**

12. Assemble the springs by performing steps 5 to 11 in the reverse order.



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## RECOVERY WATER SYSTEM

### TROUBLESHOOTING

#### The vacuum system motor does not turn on

Possible causes:

1. The wiring harness between the function electronic board and the vacuum system relay is damaged or short-circuited (check and repair).
2. The vacuum system relay is damaged (replace).
3. The wiring harness between relay and motor is damaged (repair).
4. The vacuum system fuse is open (replace).
5. The vacuum system motor carbon brushes are worn (replace).
6. The vacuum system motor is faulty (check the electrical input).
7. The function electronic board is damaged (replace).

#### Dirty water vacuuming is insufficient or there is no vacuuming

Possible causes:

1. The vacuum grid with automatic shut-off float is activated because the recovery water tank is full (empty the recovery water tank).
2. The vacuum grid with automatic shut-off float is dirty, or the vacuum pre-filter is dirty (clean).
3. The tank cover is not correctly positioned (adjust).
4. The tank cover gasket is not efficient, or the compensating hole is clogged (repair/clean).
5. The vacuum system motor filter is dirty (clean).
6. The squeegee or the vacuum hose is clogged or damaged (clean or repair/replace).
7. The vacuum gaskets are damaged or do not match perfectly (repair or replace).

#### The squeegee leaves lining on the floor or does not collect water

Possible causes:

1. There is debris under the blade (remove).
2. The squeegee blade edges are torn or worn (replace).
3. The squeegee is not balanced (adjust it with the relevant handwheel).
4. (For aluminium squeegee) The squeegee springs are not efficient (check/replace).

## DRIVE SYSTEM

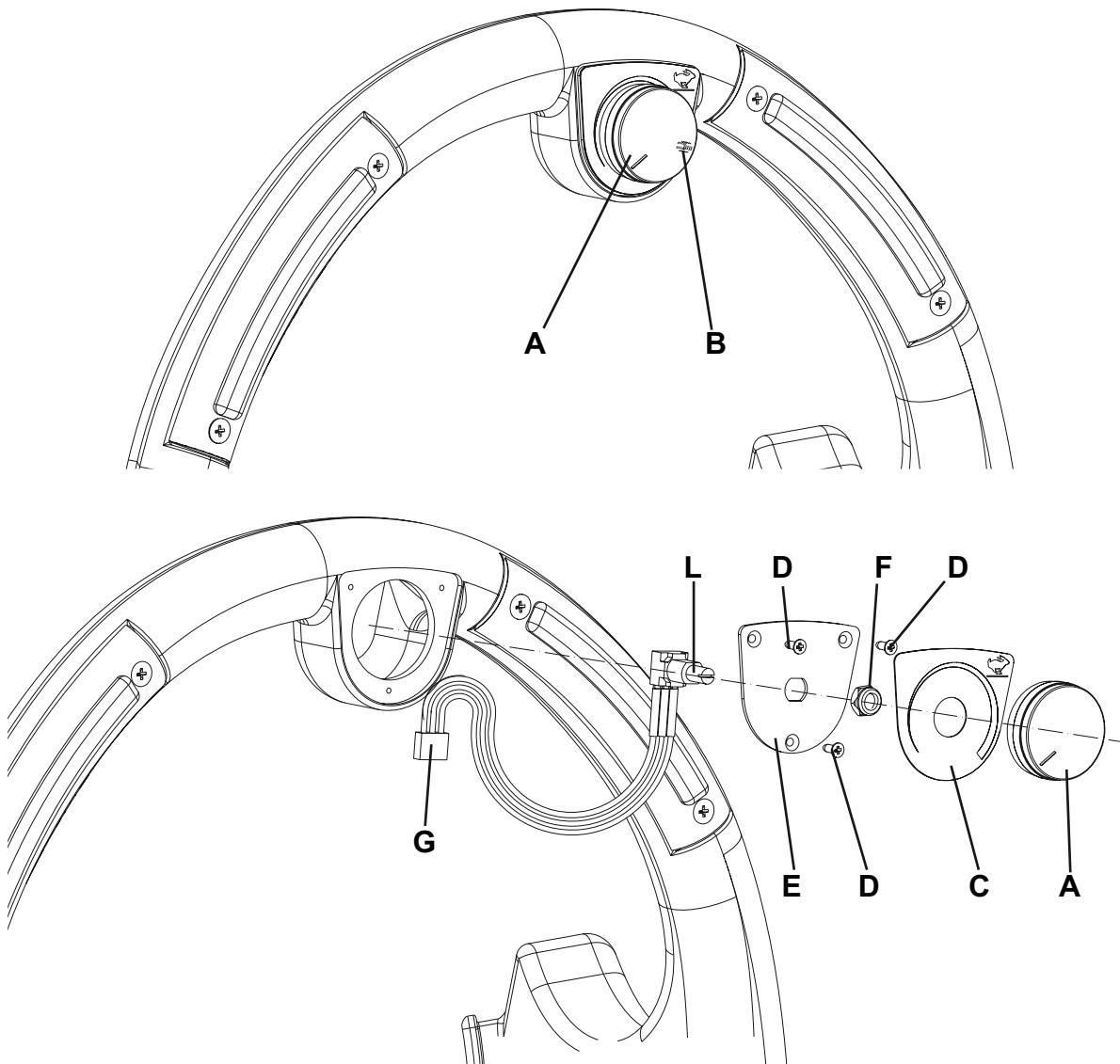
### MAXIMUM SPEED POTENTIOMETER DISASSEMBLY/ASSEMBLY (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

#### Disassembly

1. Disconnect the battery connector (12).
2. Operating inside the hole (A), loosen the threaded dowel and remove the maximum speed adjuster knob (B).
3. Remove the adhesive (C).
4. Remove the screws (D) and move the cover (E).
5. Unscrew the potentiometer mounting nut (F).
6. Disconnect the potentiometer connector (G).
7. Remove the potentiometer.

#### Assembly

8. Assemble the components in the reverse order of disassembly, and note the following:
  - Fasten the knob (B) with the potentiometer shaft (L) completely turned counter-clockwise, and the hole (A) in the lower centre part of the panel as shown in the figure.
9. Test the drive system and the maximum speed change.



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## DRIVE SYSTEM

### DRIVE SYSTEM MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

**WARNING!**

*This procedure must be performed by qualified personnel only and with the help of an assistant.*

1. Check that the batteries are completely charged, otherwise charge them as shown in the User Manual.
2. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
3. Drive the machine on a level floor.
4. Lower the deck by pressing the pedal (11).
5. Under the left side the machine, install a suitable jack (C) in the position (A), and slightly lift the machine so that the left wheel (C) can turn freely, without touching the floor or the jack.

**WARNING!**

*While performing this procedure, pay attention to the rotation of the driving wheel (C).*

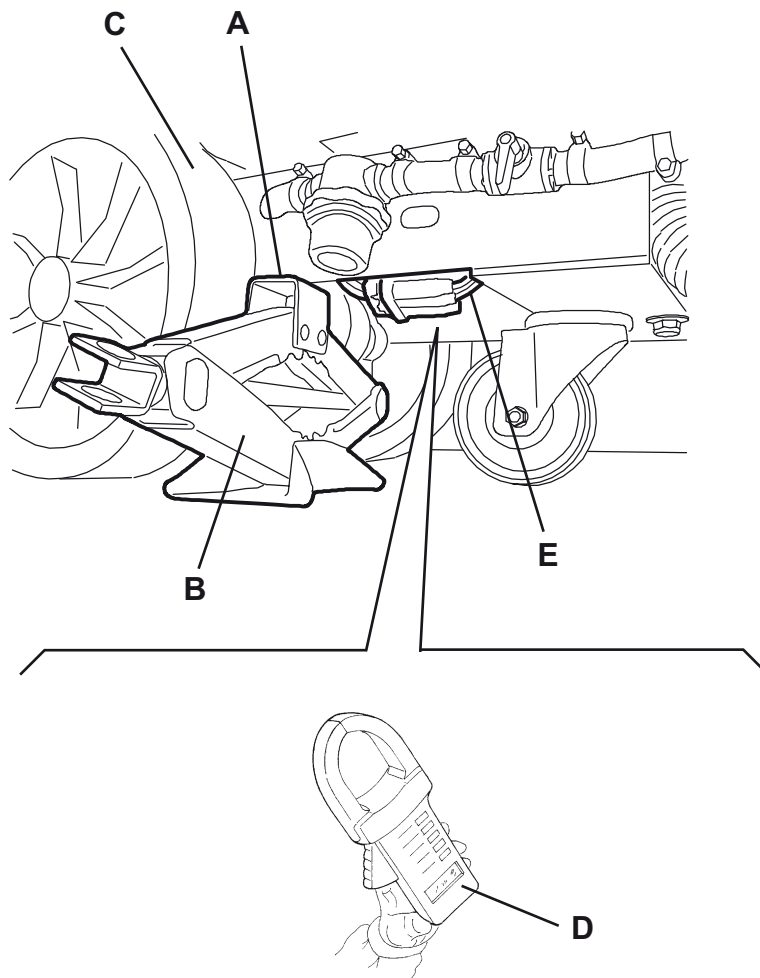
6. Apply the amperometric pliers (D) on one cable (E) of the drive system motor.
7. Turn the ignition key (80) to "I".
8. Turn the speed adjuster (84) to the maximum speed.
9. With the help of an assistant who firmly keeps the machine by the handlebar, press one of the switches (83) and check that the electrical input is 1.5 - 2.5 A at 24 V. Release the switches (83). Turn the ignition key (80) to "0" and remove the amperometric pliers (D).

If the electrical input is higher, perform the following procedures to detect and correct the abnormal input:

  - Check if there is dust or debris preventing the component rotation. The lifted wheel (C) must turn freely with a slight resistance of the differential.
  - If necessary, disassemble the motor-differential (see the procedure in the relevant paragraph) then check for hub correct alignment and bearing smooth running.

If the above-mentioned procedures do not lead to a correct electrical input, the motor must be replaced (see the procedure in the relevant paragraph).
10. Perform steps 4 and 5 in the reverse order.

## DRIVE SYSTEM

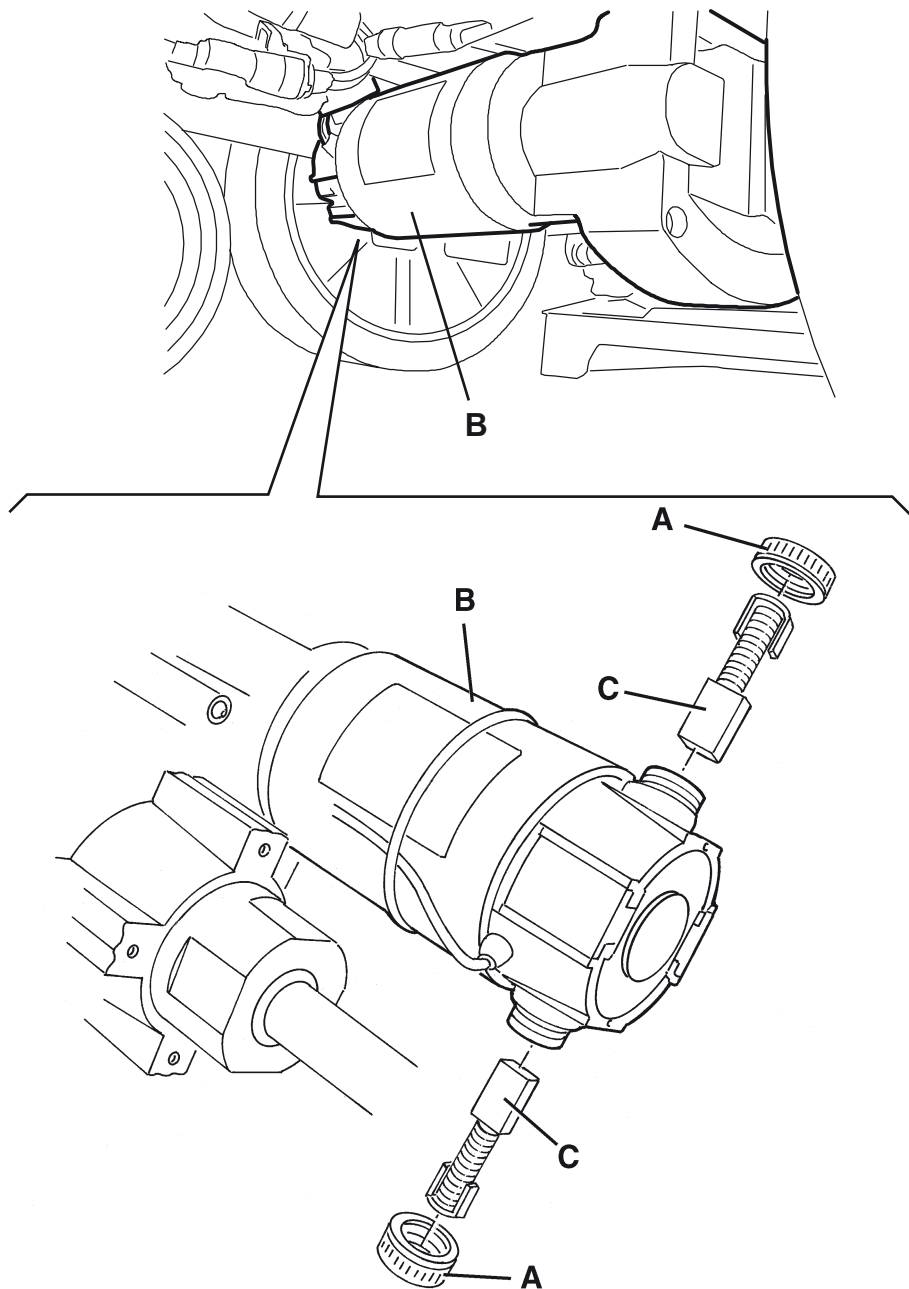
**DRIVE SYSTEM MOTOR ELECTRICAL INPUT CHECK (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL) (Continues)**

S301562

## DRIVE SYSTEM

### DRIVE SYSTEM MOTOR CARBON BRUSH CHECK AND REPLACEMENT (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

1. Drive the machine to the appointed disposal area, and empty the recovery water tank (21) with the hose (16).
2. Place the machine on a hoisting system (if available).  
Otherwise, drive the machine on a level floor.
3. Turn the ignition key (80) to "0".
4. Disconnect the battery connector (12).
5. Operating on the left side of the machine, clean the drive system motor (B) in the area of the covers (A), thus removing dirt and dust.
6. Unscrew the covers (A) and remove the carbon brushes (C).
7. Check the carbon brushes (C) for wear. Replace the carbon brushes when: the contact with the motor armature is insufficient, the carbon brushes are worn, the carbon brush contact surface is not integral, the thrust spring is broken, etc.  
If necessary, replace the carbon brushes. Replace the carbon brushes as an assembly.
8. Assemble in the reverse order of disassembly.



S301563A

## DRIVE SYSTEM

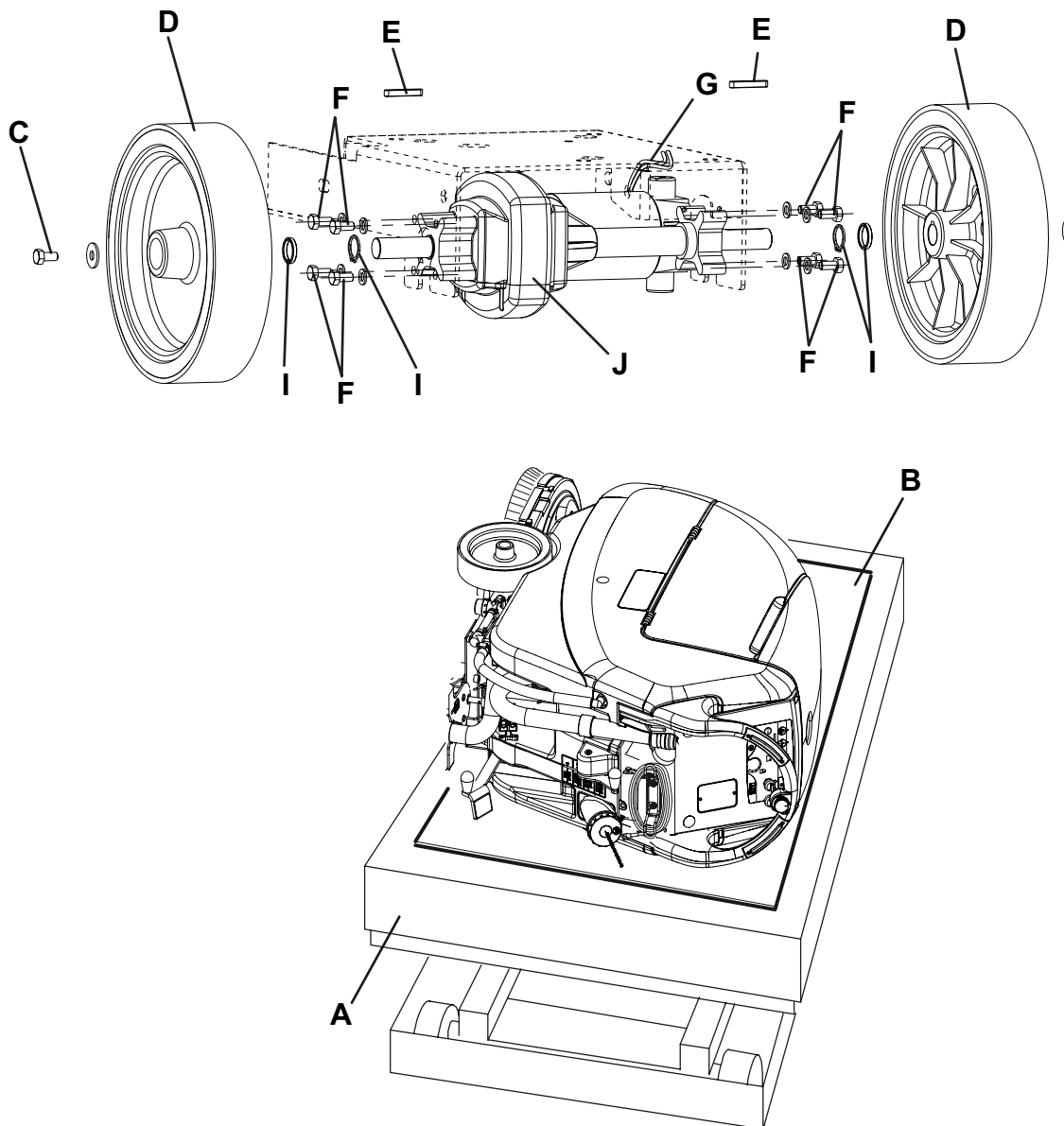
# DRIVE SYSTEM MOTOR-DIFFERENTIAL DISASSEMBLY/ASSEMBLY (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

## Disassembly

1. If the tank (21) and/or (20) contains recovery water:
  - Drive the machine to the appointed disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
  - Empty the solution/clean water tank (20) with the hose (17).
2. Remove the squeegee (see the procedure in the relevant paragraph).
3. Remove the batteries (see the procedure in the relevant paragraph).
4. Prepare an hoisting system (A) on which the machine is to be laid on one side. Place a panel (B) on the hoisting system to avoid damaging the machine.
5. With the help of an assistant, tilt the machine on one side and lay it on the panel (B).
6. Remove the screws (C), then remove the wheels (D) and recover the keys (E).
7. Remove the screws (F) on both sides.
8. Disconnect the connectors (G) of the drive system motor.
9. If necessary, remove the spacers (I) and the retaining rings.
10. Remove the motor-differential (J).

## Assembly

11. Assemble in the reverse order of disassembly.



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## DRIVE SYSTEM

### TROUBLESHOOTING

#### Open circuit

Possible causes:

1. There are bulky debris or cords under the machine or around the driving wheels (remove the debris).
2. The motor is damaged (check the motor electrical input).
3. The floor gradient is excessive (do not use the drive system on slopes with a gradient exceeding the specifications).
4. There is a short circuit in the drive system electronic board wiring harness (repair).
5. The drive system electronic board is faulty (replace).

#### The machine does not move

Possible causes:

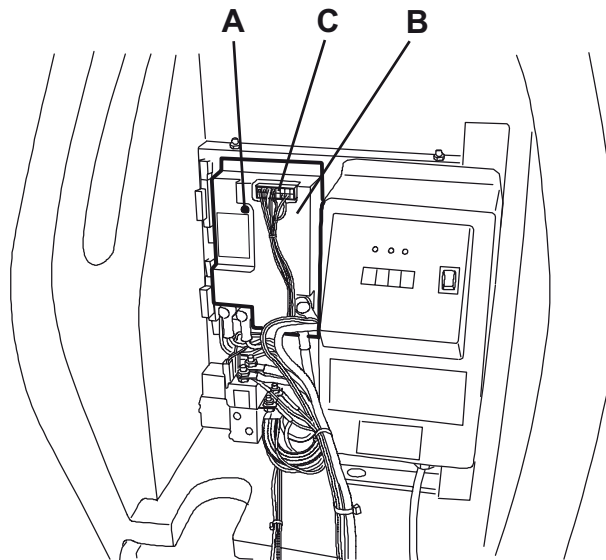
1. The battery voltage is too low (charge the batteries).
2. The drive paddle potentiometer (83) is misadjusted or broken (adjust or replace).
3. The speed adjuster (84) is broken (replace).
4. The drive system enabling microswitch is misadjusted or broken (adjust or replace).
5. The drive system electronic board is faulty (replace).
6. There is an open in the fuse (repair).
7. The wiring harness is damaged (repair).
8. The drive system motor carbon brushes are worn (replace).
9. The drive system motor is faulty (replace).

## TROUBLESHOOTING (Continues)

Drive system electronic board diagnostic table

No. of flashes (*)	Meaning	Action
1	Drive system/brush enabling microswitch closed when starting the machine	Check the SW1 switches
2	Reverse gear switch closed when starting the machine	Check the switch SW2
5	Thermal protection	Check the drive system motor electrical input
6	Faulty drive system electronic board	Replace the drive system electronic board
7	Overcurrent output	Check the drive system motor electrical input; if the electrical input is normal, replace the drive system electronic board
8	Missing power connection	Check the drive system fuse and the drive system electronic board wiring harness; if the fuse and the wiring harness are normal, replace the drive system electronic board
9	Low battery voltage	Charge the batteries.
10	High battery voltage	Check the batteries
11	Overload output	Check the drive system motor electrical input
12	(Not applicable)	–
13	Ignition key wrong sequence	Check for false contacts in the ignition key – function electronic board – drive system electronic board circuit (orange cables)
14	Software error	Replace the drive system electronic board (B).

(\*) Flashing of led (A) of the drive system electronic board (B).



S301565

## OTHER SYSTEMS

## OTHER SYSTEMS

### SCREW AND NUT TIGHTENING CHECK (All models)

1. Drive the machine to the appointed disposal area, and empty the recovery water tank (21) with the hose (16).
2. Place the machine on a hoisting system (if available).  
Otherwise, drive the machine on a level floor.
3. (**SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL**). Turn the ignition key (80) to "0".  
(**SCRUBTEC 545E, 553E, 653E**). Disconnect the power supply cable (59) from the electrical mains.
4. (**SCRUBTEC 545E, 553E, 653E**). Open the recovery water tank cover (22). Remove the retaining plate (61) of the tank (40).
5. Carefully lift the tank (40).
6. Check:
  - Tightening of mounting screws and nuts;
  - Correct position of fasteners;
  - Visible faults in the components;
  - Leaks of fluids.
7. Carefully lower the tank (40).
8. (**SCRUBTEC 545E, 553E, 653E**). Install the retaining plate (61).

**WARNING!**

(**SCRUBTEC 545E, 553E, 653E**). *When the maintenance/repair procedure is completed, the tank (40) must always be locked with the plate (61).*

9. Remove the machine from the hoisting system.



**ELECTRICAL SYSTEM****ELECTRICAL SYSTEM****MACHINE WORKING HOUR CHECK (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL, equipped with optional hour counter)**

1. Turn the ignition key (80) to "I".
2. Press the vacuum system switch (73) and read on the hour counter (79) the total number of working hours (scrubbing/drying) performed by the machine.
3. Turn off the vacuum system by pressing the switch (73).
4. Turn the ignition key (80) to "0".

**MACHINE WORKING HOUR CHECK (SCRUBTEC 545E, 553E, 653E, equipped with optional hour counter)**

1. Connect the power supply cable (59) to the electrical mains.
2. Press the vacuum system switch (63) and read on the hour counter (79) the total number of working hours (scrubbing/drying) performed by the machine.
3. Turn off the vacuum system by pressing the switch (63).
4. Disconnect the power supply cable (59) from the electrical mains and place it on the holder (50).

**POWER SUPPLY CABLE CHECK (SCRUBTEC 545E, 553E, 653E)**

Carefully check the power supply cable and the relevant plug for wear, cuts, cracks or other damages. If the power supply cable or the relevant plug is damaged, replace them with original spare parts.

**BATTERY CHARGE AND MAINTENANCE (All models)**

See the User Manual.

## ELECTRICAL SYSTEM

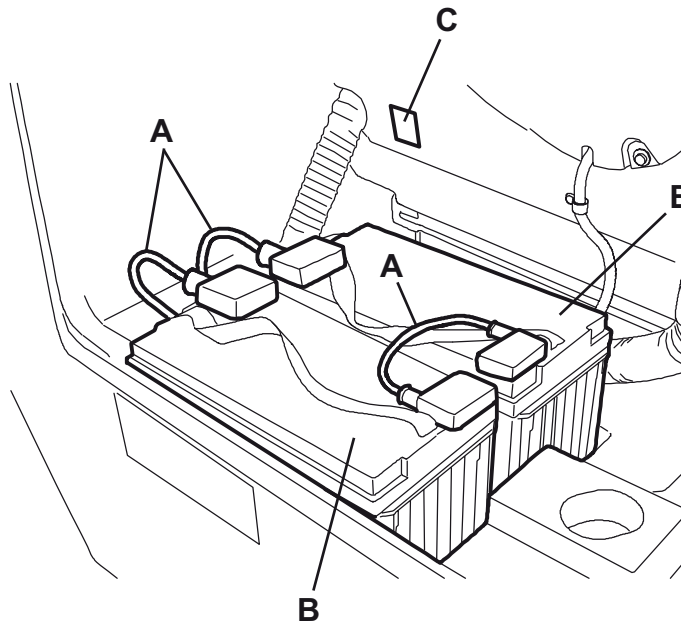
### BATTERY DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL; 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)

#### Disassembly

1. If the tank (21) contains recovery water:
  - Drive the machine to the appointed recovery water disposal area.
  - Turn the ignition key (80) to "0".
  - Empty the recovery water tank (21) with the hose (16).
2. Drive the machine on a level floor.
3. Turn the ignition key (80) to "0".
4. Disconnect the battery connector (12).
5. Carefully lift the tank (40).
6. Disconnect the cables (A) from the battery terminals.
7. Remove the battery shims, if equipped.
8. Carefully remove the batteries (B).

#### Assembly

9. Assemble the batteries in the reverse order of disassembly, referring to the installation diagram (C), and note the following:
  - Set the machine according to the type of batteries installed (WET or GEL) as shown in the relevant paragraph.



S301566

## ELECTRICAL SYSTEM

**BATTERY TYPE SETTING (WET OR GEL) (SCRUBTEC 545B, 553B, 653B)**

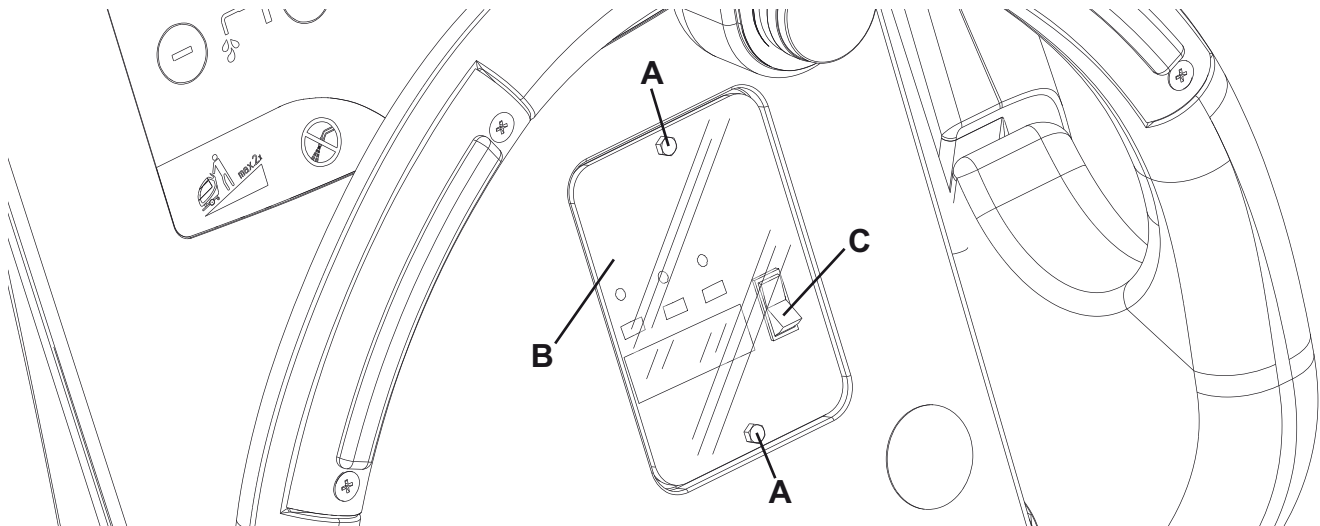
Set the electronic board of the machine and of the battery charger (if equipped) according to the type of batteries installed (WET or GEL) according to the following procedure:

**Machine setting**

1. Press the switch (71) or (73) and pay attention to the following in the very first seconds of machine operation:
  - If the green warning light (81a) is flashing, the machine is set to GEL.
  - If the red warning light (81c) is flashing, the machine is set to WET.
2. If the setting is to be changed, perform the following procedure.
3. Make sure that the switches (71) and (73) are turned off.
4. Press and hold the switches (71) and (73) at the same time.
5. Release the switches (71) and (73) at least 8 seconds after starting the machine.
6. Within three seconds, press the switch (73) again for a few seconds and check that the warning light for the required setting is flashing (as shown in step 1).

**Battery charger setting (if equipped)**

7. Remove the battery charger data inspection window screws (A).
8. Remove the window (B).
9. Turn the battery charger selector (C) to WET position for lead batteries, or to GEL position for gel batteries.
10. Install the window (B) and tighten the screws (A).



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## ELECTRICAL SYSTEM

### BATTERY TYPE SETTING (WET OR GEL) (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

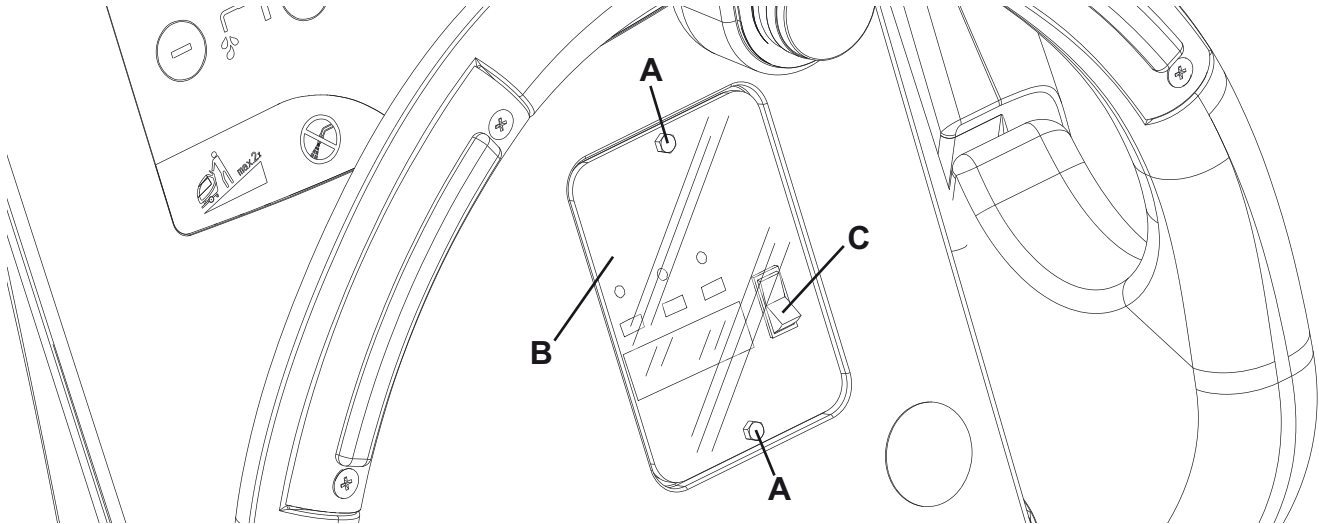
Set the electronic board of the machine and of the battery charger (if equipped) according to the type of batteries installed (WET or GEL) according to the following procedure:

#### Machine setting

1. Turn the ignition key (80) to "I" and pay attention to the following in the very first seconds of machine operation:
  - If the green warning light (81a) is flashing, the machine is set to GEL.
  - If the red warning light (81c) is flashing, the machine is set to WET.
2. If the setting is to be changed, perform the following procedure.
3. Turn off the machine by turning the ignition key (80) to "0".
4. Press and hold the switches (71) and (73) at the same time, then turn the ignition key (80) to "I".
5. Release the switches (71) and (73) at least 8 seconds after starting the machine.
6. Within three seconds, press the switch (73) again for a few seconds and check that the warning light for the required setting is flashing (as shown in step 1).

#### Battery charger setting (if equipped)

7. Remove the battery charger data inspection window screws (A).
8. Remove the window (B).
9. Turn the battery charger selector (C) to WET position for lead batteries, or to GEL position for gel batteries.
10. Install the window (B) and tighten the screws (A).



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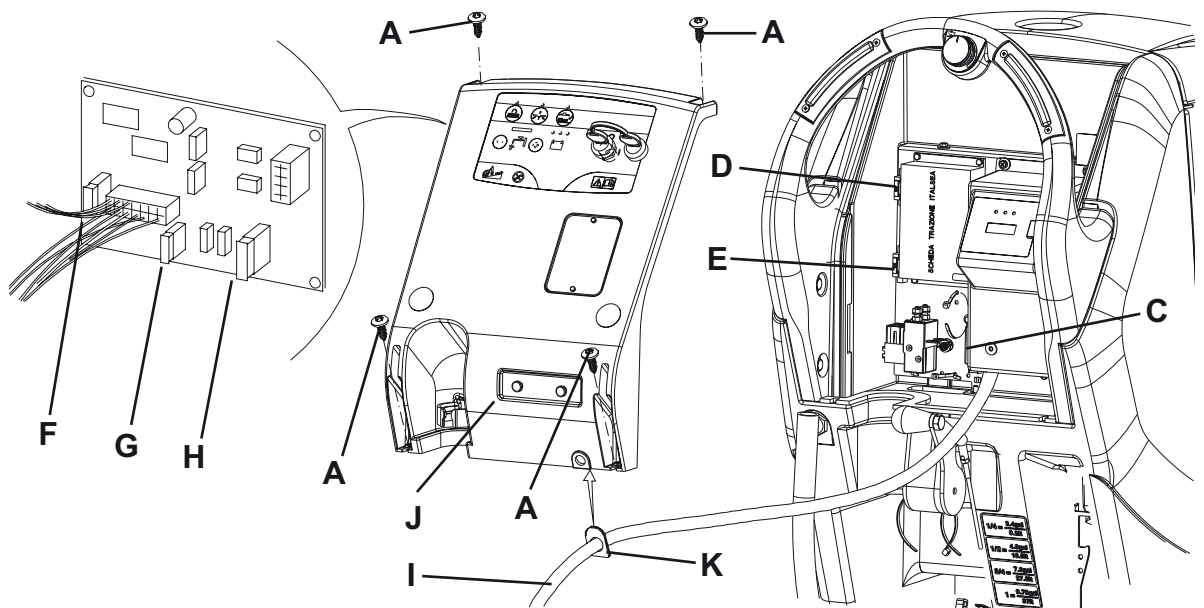
## ELECTRICAL SYSTEM

**FUSE CHECK/REPLACEMENT (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)**

1. Disconnect the battery connector (12).
2. Move aside the recovery water drain hose (16).
3. Remove the battery charger cable (I), if equipped, from the cable holder (J).
4. Remove the screws (A) and carefully move aside the panel (B) by disengaging the grommet (K) from its housing on the panel (B).
5. Check/replace the following fuses:
  - C) Deck fuse F1: (40 A)
  - D) Vacuum system fuse F2: (30 A)
  - E) Drive system fuse F3: (30 A) (\*)
  - F) Signal circuits fuse F4: (3 A)
  - G) Brush/pad-holder release fuse F5: (20 A)
  - H) Pump fuse F6: (3 A)

(\*) Only for **SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL**

6. Perform steps 1 to 4 in the reverse order.

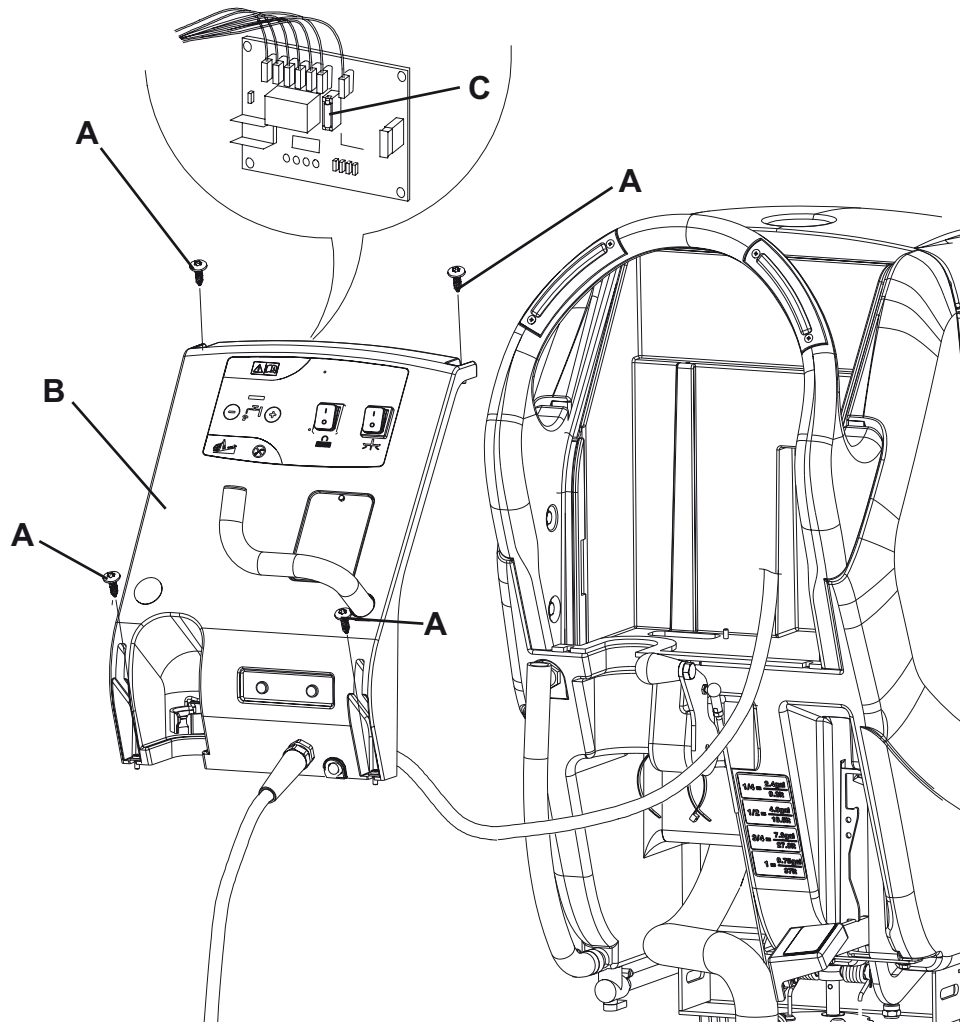


P100110

## ELECTRICAL SYSTEM

### FUSE CHECK/REPLACEMENT (SCRUBTEC 545E, 553E, 653E)

1. Disconnect the power supply cable (59) from the electrical mains but do not place it on the holder (60).
2. If the power supply cable (59) is on the holder (60), remove it.
3. Move aside the recovery water drain hose (16).
4. Remove the screws (A) and carefully move the panel (B).
5. Check/replace the following fuse:  
C) Electronic board fuse FL1: (1 A)
6. Perform steps 2 to 4 in the reverse order.



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## ELECTRICAL SYSTEM

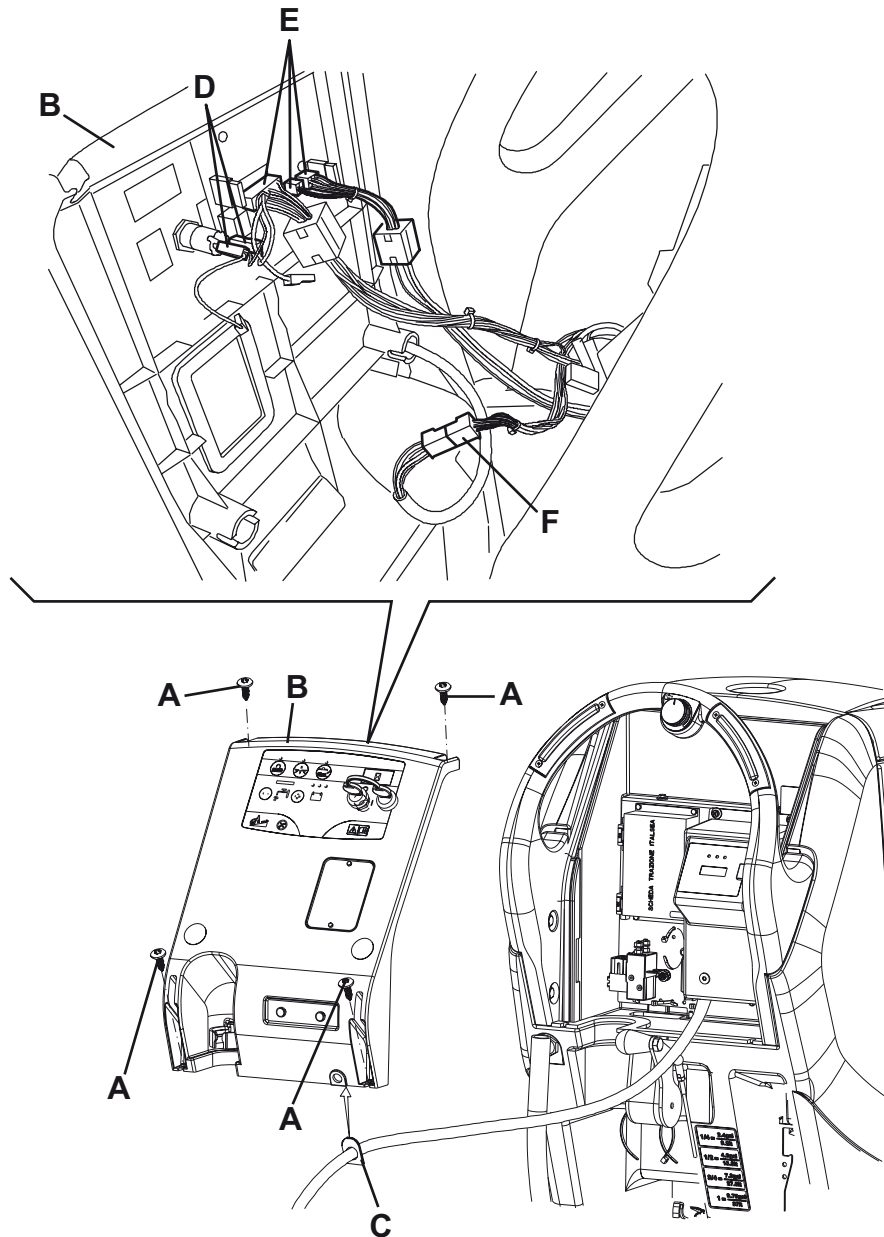
## BRUSH MOTOR ELECTROMAGNETIC SWITCH DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)

## Disassembly

1. Disconnect the battery connector (12).
2. Move aside the recovery water drain hose (16).
3. Remove the battery charger cable (6), if equipped, from the cable holder (7).
4. Remove the screws and carefully move aside the panel (B) by disengaging the cable grommet from its housing on the panel (B).
5. Disconnect the connectors (D), (E), (F), and remove the panel (B).
6. Disconnect the terminals (G) and (H) from the electromagnetic switch (J). Disconnect also the terminals (I), which are only on models equipped with drive system.
7. Remove the screws (K) and move the electrical panel (L) by disengaging it from the lower fastener (M).
8. Remove the screws (N) on the rear side of the electrical panel (L), then remove the electromagnetic switch (J).

## Assembly

9. Assemble in the reverse order of disassembly.

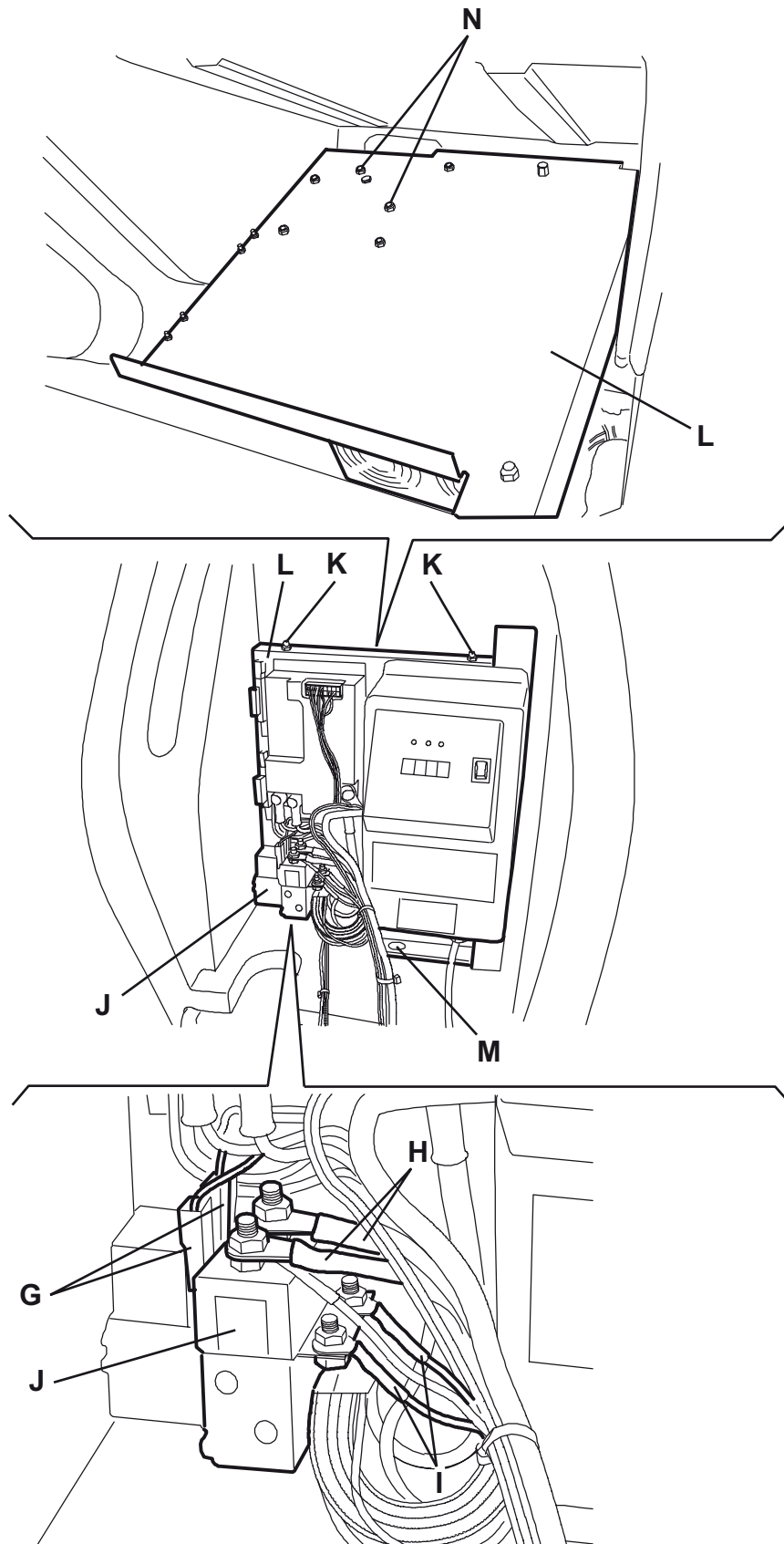


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## ELECTRICAL SYSTEM

BRUSH MOTOR ELECTROMAGNETIC SWITCH DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL) (Continues)



S301572

## ELECTRICAL SYSTEM

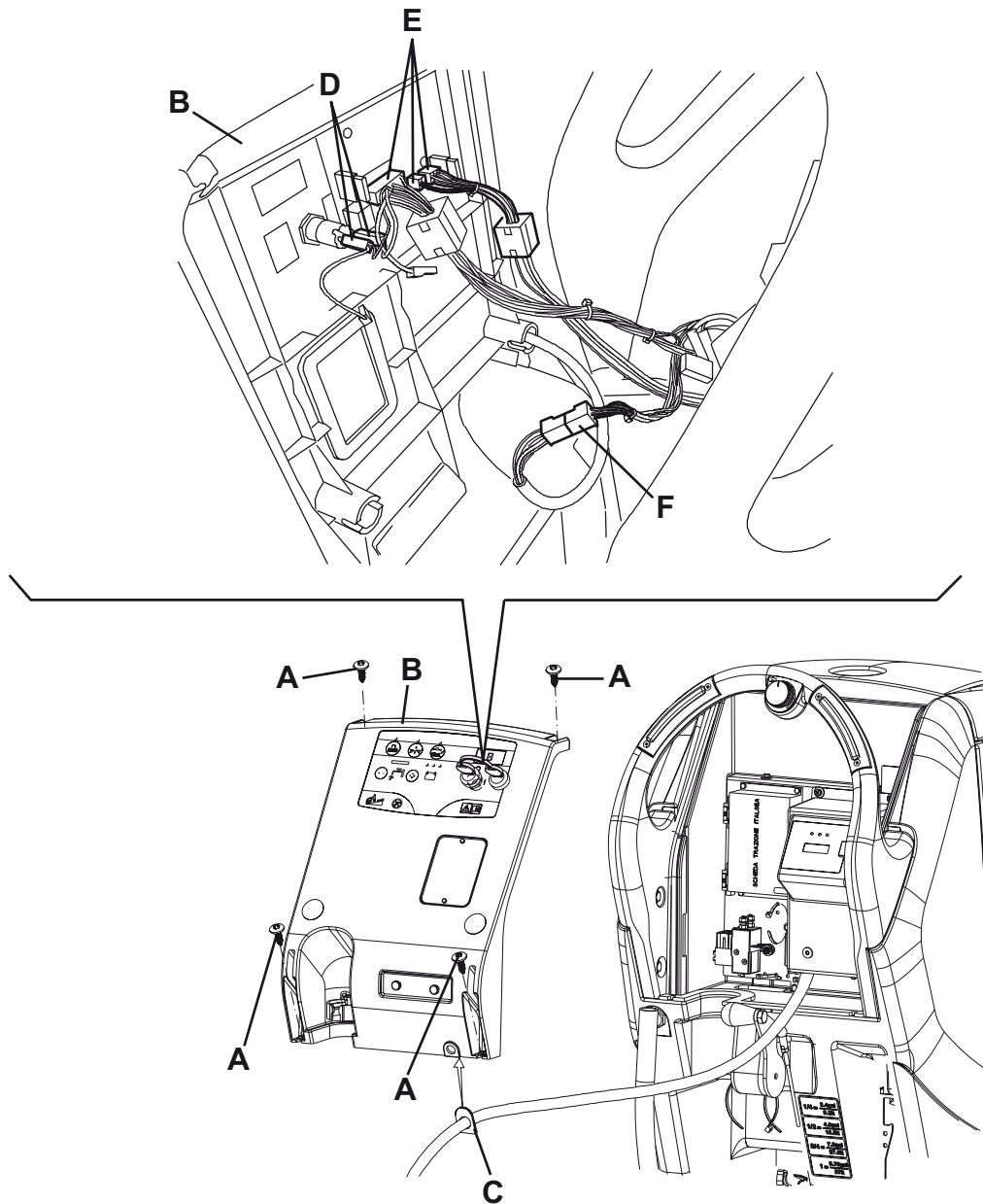
## DRIVE SYSTEM ELECTRONIC BOARD DISASSEMBLY/ASSEMBLY (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

## Disassembly

1. Disconnect the battery connector (12).
2. Move aside the recovery water drain hose (16).
3. Remove the battery charger cable (6), if equipped, from the cable holder (7).
4. Remove the screws and carefully move aside the panel (B) by disengaging the cable grommet from its housing on the panel (B).
5. Disconnect the connectors (D), (E), (F), and remove the panel (B).
6. Disconnect the connectors (G) of the drive system electronic board (H).
7. Remove the screws (I) and move the electrical panel (J) by disengaging it from the lower fastener (K).
8. Remove the screws (L) on the rear side of the electrical panel (J), then remove the drive system electronic board (H).

## Assembly

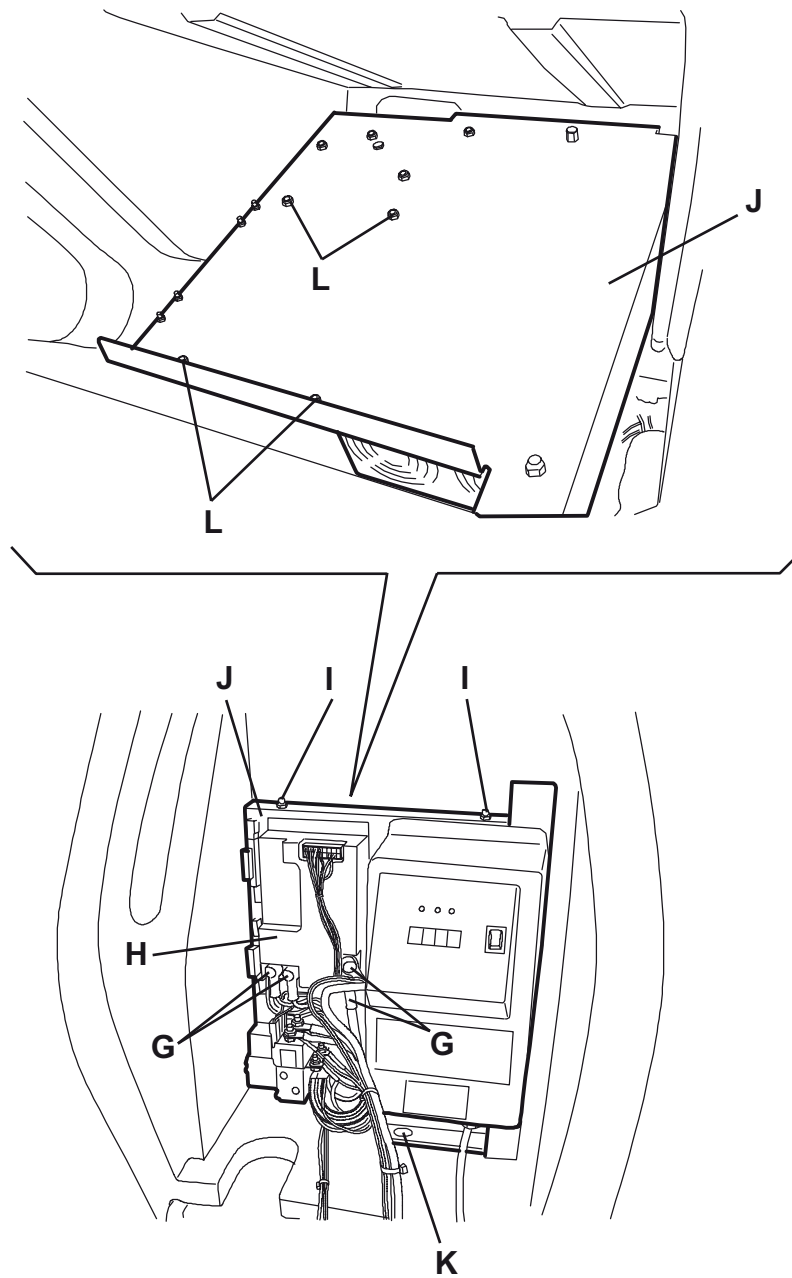
9. Assemble in the reverse order of disassembly.



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## ELECTRICAL SYSTEM

### DRIVE SYSTEM ELECTRONIC BOARD DISASSEMBLY/ASSEMBLY (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL) (Continues)



S301574

## ELECTRICAL SYSTEM

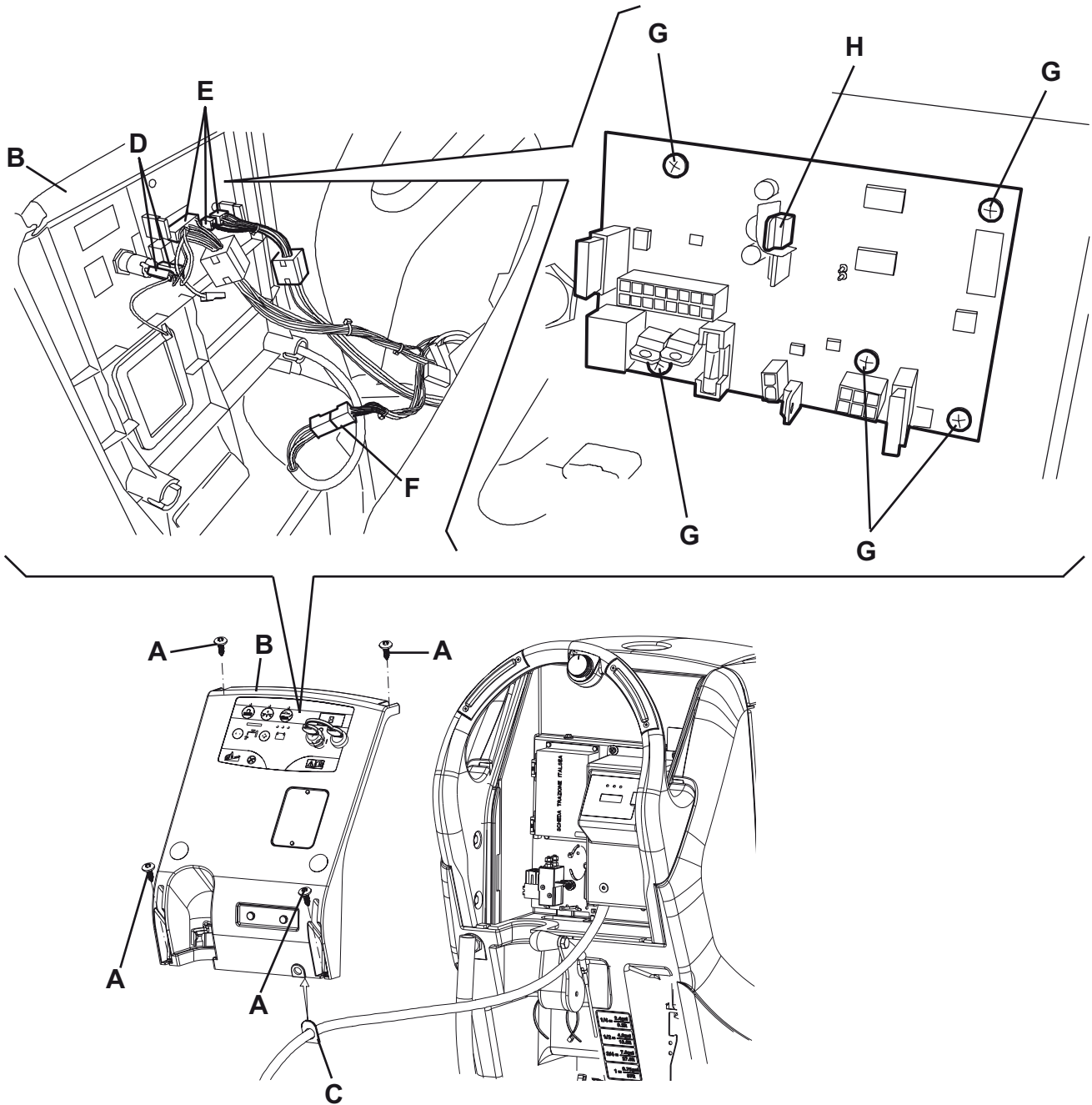
## FUNCTION ELECTRONIC BOARD DISASSEMBLY/ASSEMBLY (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)

## Disassembly

1. Disconnect the battery connector (12).
2. Move aside the recovery water drain hose (16).
3. Remove the battery charger cable (6), if equipped, from the cable holder (7).
4. Remove the screws and carefully move aside the panel (B) by disengaging the cable grommet from its housing on the panel (B).
5. Disconnect the connectors (D), (E), (F), and remove the panel (B).
6. On the panel, remove the screws (G), then remove the function electronic board (H).

## Assembly

7. Assemble in the reverse order of disassembly.



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# ELECTRICAL SYSTEM

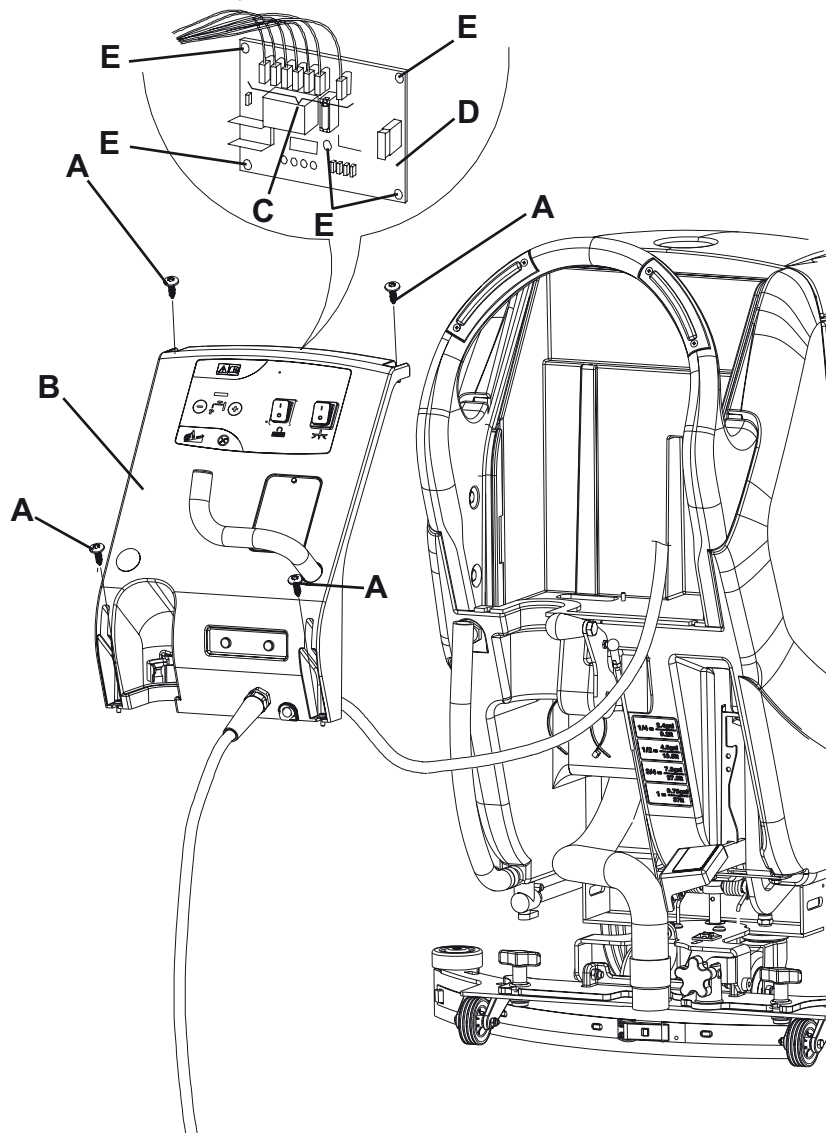
## WATER FLOW CONTROL ELECTRONIC BOARD DISASSEMBLY/ASSEMBLY (SCRUBTEC 545E, 553E, 653E)

### Disassembly

1. Disconnect the power supply cable (59) from the electrical mains but do not place it on the holder (60).
2. If the power supply cable (59) is on the holder (60), remove it.
3. Move aside the recovery water drain hose (16).
4. Remove the screws (A) and carefully move the panel (B).
5. If necessary, mark the position of the connections (C) of the water flow control electronic board (D) to reinstall them correctly (if necessary, refer to the wiring diagram to check the connection positions).
6. Disconnect the connections (C) of the water flow control electronic board (D).
7. Remove the screws (E), then remove the water flow control electronic board (D).

### Assembly

8. Assemble in the reverse order of disassembly.



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## ELECTRICAL SYSTEM

## TROUBLESHOOTING

See the previous chapters related to the use of the electrical system.

Other possible causes:

1. The batteries are discharged or the connections are not efficient (charge the batteries or clean the connections).
2. The batteries are broken (check the battery no-load voltage).



## NOTE

*In the machines equipped with on-board battery charger, a fault in the battery charger and relevant connections can affect the machine operation.*

3. The battery charger is broken (replace) (only for machine equipped with on-board battery charger).
4. There is an open in the fuses (replace).
5. The wiring harness is cut, pressed or short-circuited (repair).
6. Error codes indicated by LEDs (81a - 81b - 81c):

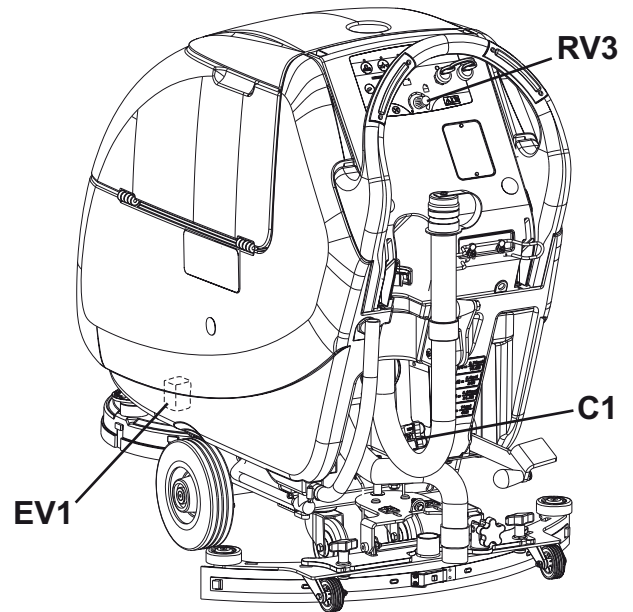
Flashes	Meaning	Action
Green, yellow and red LED flashing simultaneously.	Problem related to brush motor overload.	Perform checks shown in BRUSH MOTOR ELECTRICAL INPUT CHECK.
		If check results are negative, check the F1 fuse for integrity and tightness.
Red LED flashing.	The batteries are discharged.	Charge the batteries.
		If the problem persists, replace them.

# ELECTRICAL SYSTEM

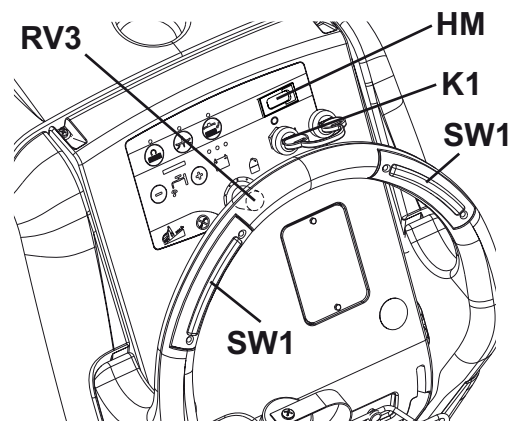
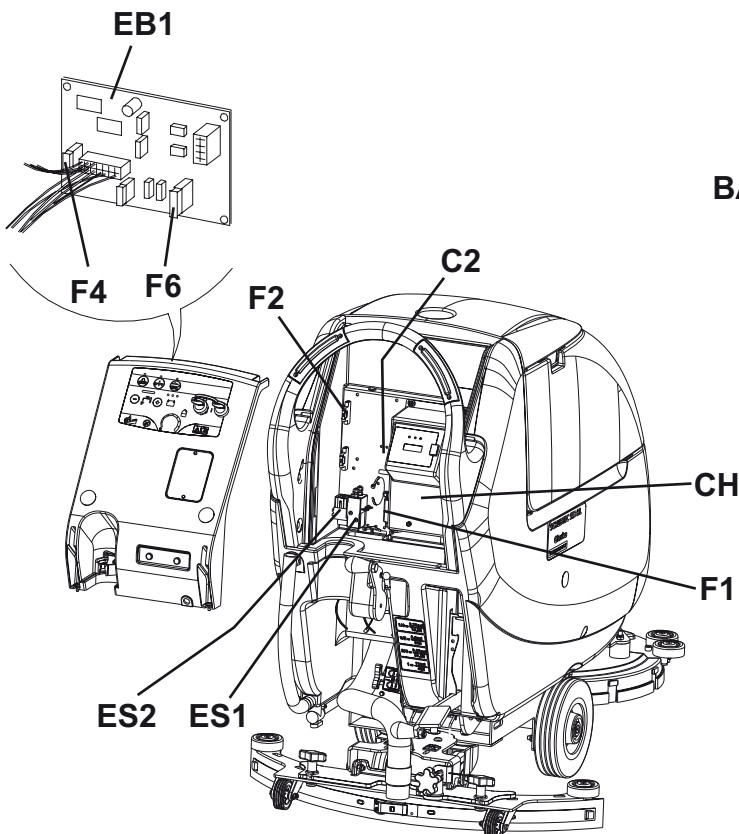
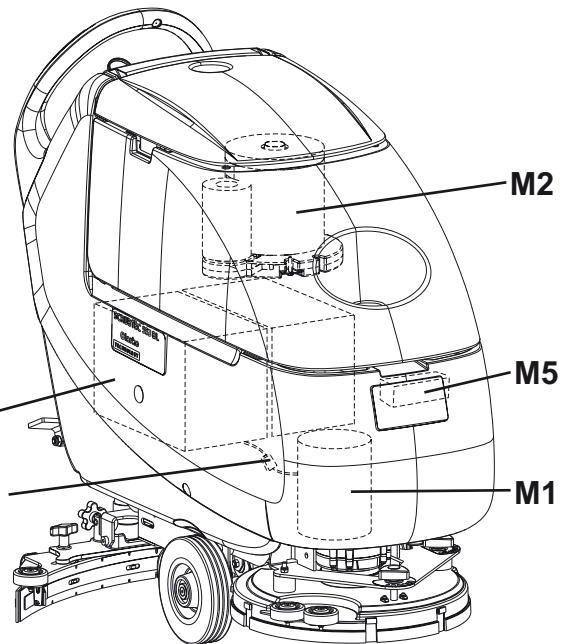
## COMPONENT LAYOUT (SCRUBTEC 545B, 553B, 653B)

### Key

BAT	24 V battery
C1	Battery connector
C2	Battery charger connector
CH	Battery charger (optional)
CS	Deck connector
EB1	Function electronic board
ES1	Brush electromagnetic switches
ES2	Vacuum system relay
EV1	Water solenoid valve
F1	Deck fuse
F2	Vacuum system fuse
F4	Signal circuit fuse
F5	Brush release fuse
F6	Pump fuse
HM	Hour counter (optional)
K1	Ignition key
M1	Brush/pad-holder motor
M2	Vacuum system motor
M5	Detergent pump (optional)
RV3	Detergent % potentiometer (optional)
SW1	Brush/drive system enabling switch



**NOTE**  
Figure showing 545B



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## ELECTRICAL SYSTEM

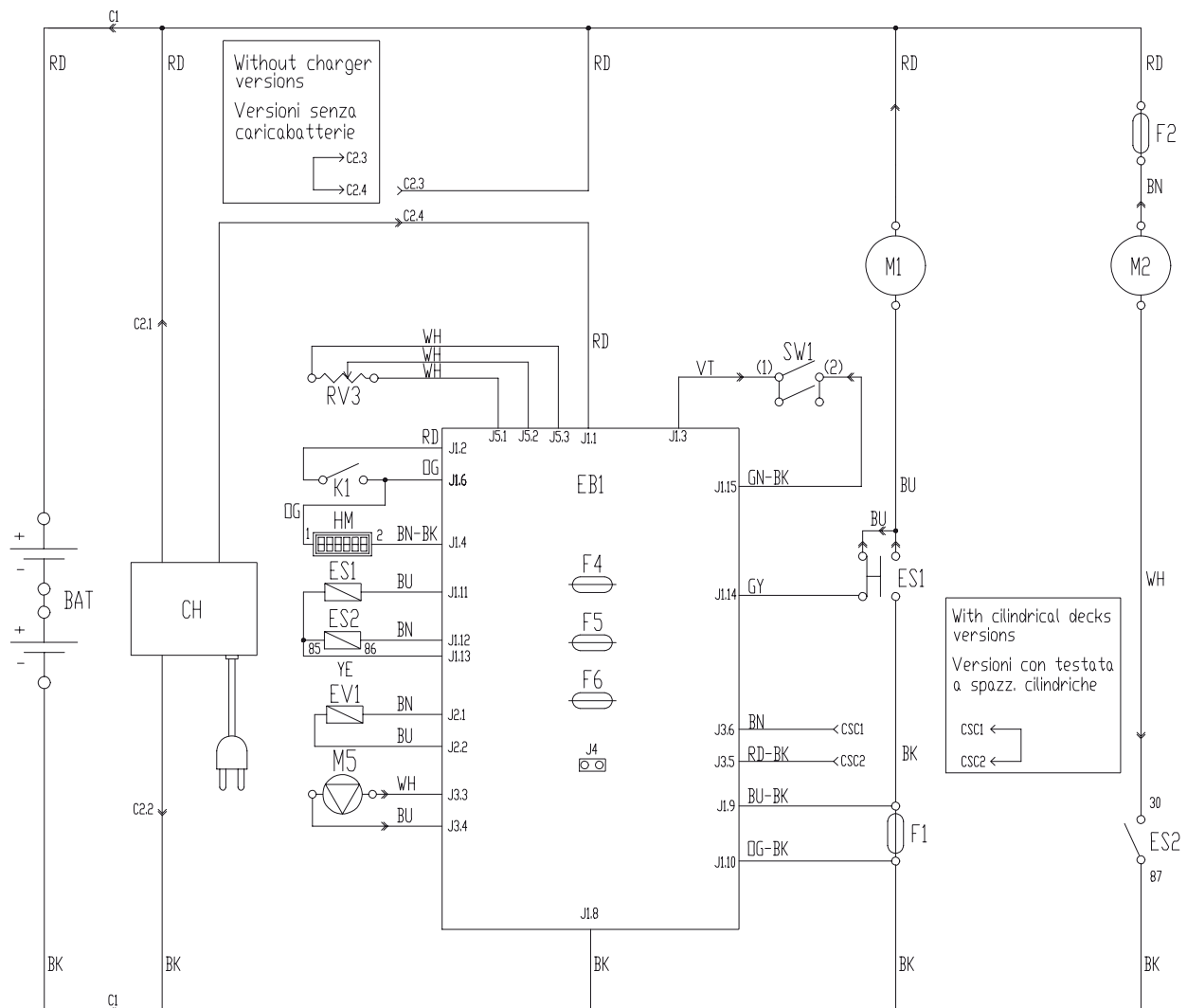
## WIRING DIAGRAM (SCRUBTEC 545B, 553B, 653B)

## Key

BAT	24 V battery
C1	Battery connector
C2	Battery charger connector
CH	Battery charger (optional)
CS	Deck connector
EB1	Function electronic board
ES1	Brush electromagnetic switches
ES2	Vacuum system relay
EV1	Water solenoid valve
F1	Deck fuse
F2	Vacuum system fuse
F4	Signal circuit fuse
F5	Brush release fuse
F6	Pump fuse
HM	Hour counter (optional)
K1	Ignition key
M1	Brush/pad-holder motor
M2	Vacuum system motor
M5	Detergent pump (optional)
RV3	Detergent % potentiometer (optional)
SW1	Brush/drive system enabling switch

## Colour codes

BK	Black
BU	Blue
BN	Brown
GN	Green
GY	Grey
OG	Orange
PK	Pink
RD	Red
VT	Violet
WH	White
YE	Yellow



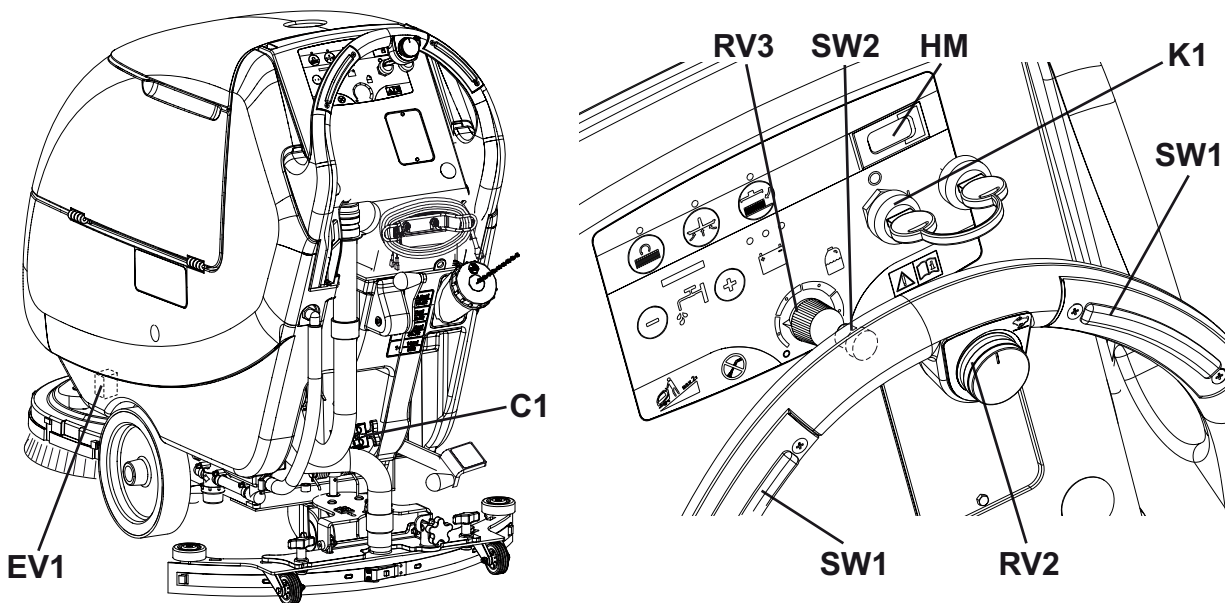
P100127

# ELECTRICAL SYSTEM

## COMPONENT LAYOUT (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

### Key

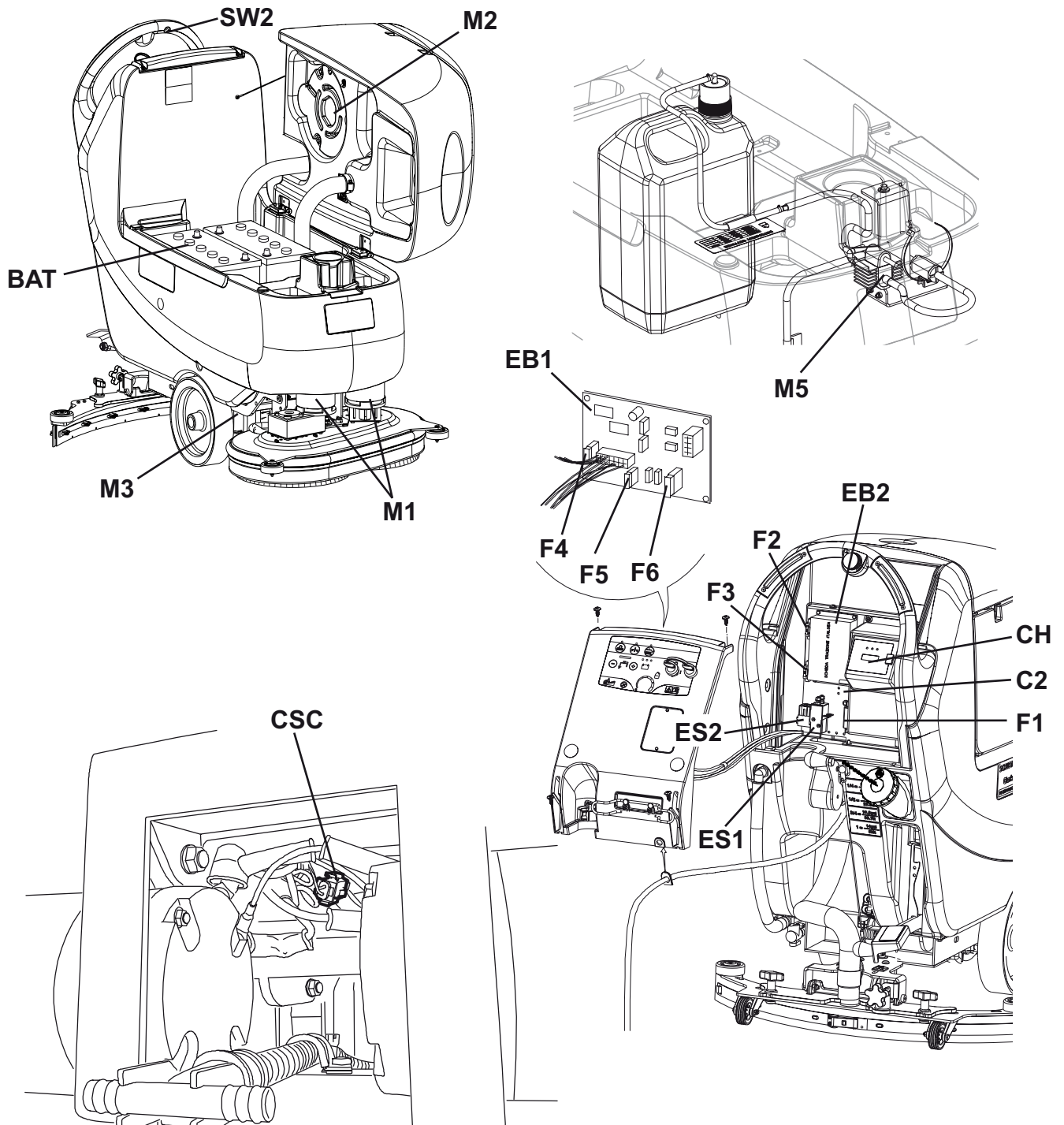
BAT	24 V battery
C1	Battery connector
C2	Battery charger connector
CH	Battery charger (optional)
CSC	Cylindrical brush deck sub-connector
EB1	Function electronic board
EB2	Drive system electronic board
ES1	Brush electromagnetic switches
ES2	Vacuum system relay
EV1	Water solenoid valve
F1	Deck fuse
F2	Vacuum system fuse
F3	Drive system fuse
F4	Signal circuit fuse
F5	Brush/pad-holder release fuse
F6	Pump fuse
HM	Hour counter (optional)
K1	Ignition key
M1	Brush/pad-holder motor
M2	Vacuum system motor
M3	Drive system motor
M5	Detergent pump (optional)
RV2	Maximum speed potentiometer
RV3	Detergent % potentiometer (optional)
SW1	Brush/drive system enabling switch
SW2	Reverse gear switch



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## ELECTRICAL SYSTEM

## COMPONENT LAYOUT (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL) (Continues)



P100149

## ELECTRICAL SYSTEM

### WIRING DIAGRAM (SCRUBTEC 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL)

#### Key

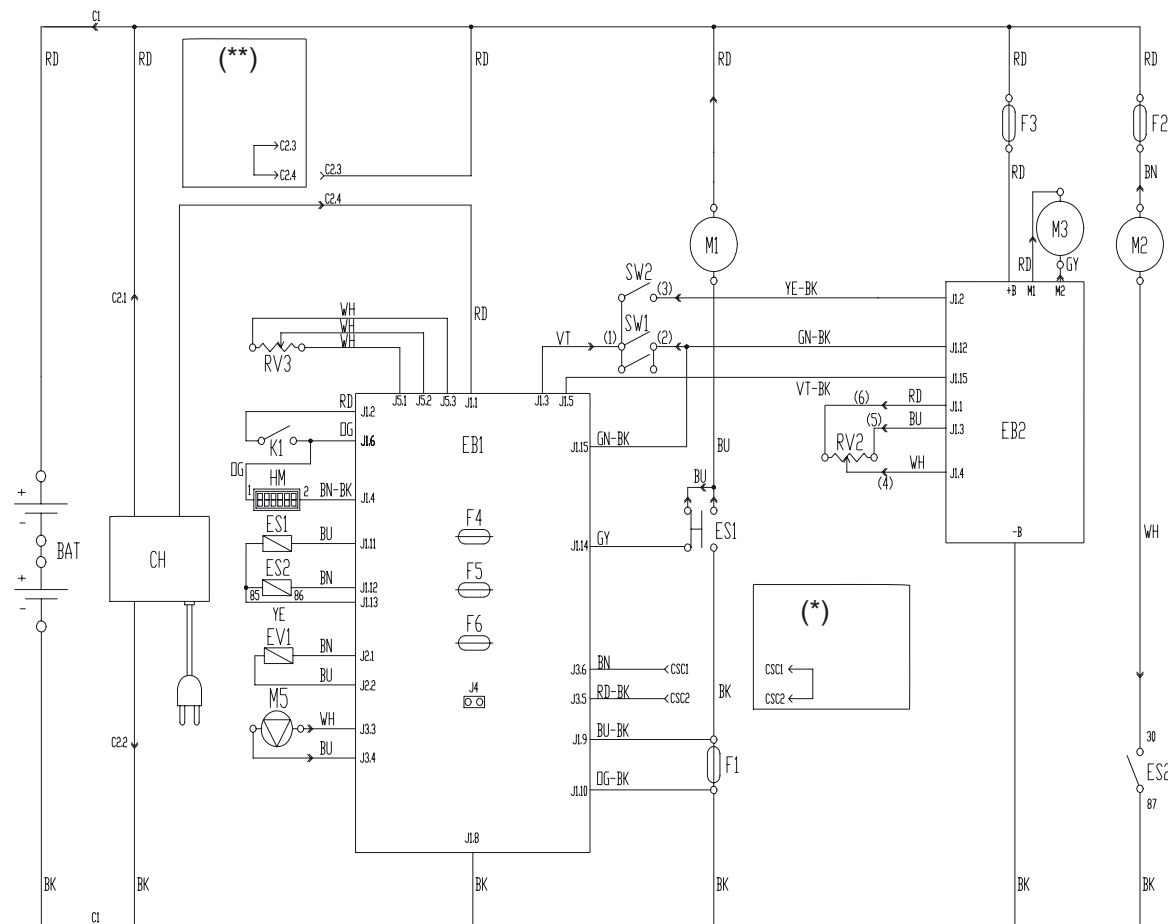
BAT	24 V battery
C1	Battery connector
C2	Battery charger connector
CH	Battery charger (optional)
CSC	Cylindrical brush deck sub-connector
EB1	Function electronic board
EB2	Drive system electronic board
ES1	Brush electromagnetic switches
ES2	Vacuum system relay
EV1	Water solenoid valve
F1	Deck fuse
F2	Vacuum system fuse
F3	Drive system fuse
F4	Signal circuit fuse
F5	Brush/pad-holder release fuse
F6	Pump fuse
HM	Hour counter (optional)
K1	Ignition key
M1	Brush/pad-holder motor
M2	Vacuum system motor
M3	Drive system motor
M5	Detergent pump (optional)
RV2	Maximum speed potentiometer
RV3	Detergent % potentiometer (optional)
SW1	Brush/drive system enabling switch
SW2	Reverse gear switch

#### Colour codes

BK	Black
BU	Blue
BN	Brown
GN	Green
GY	Grey
OG	Orange
PK	Pink
RD	Red
VT	Violet
WH	White
YE	Yellow

(\*) Only for machines with cylindrical brush deck

(\*\*) Only for machines without on-board battery charger



P100128

## ELECTRICAL SYSTEM

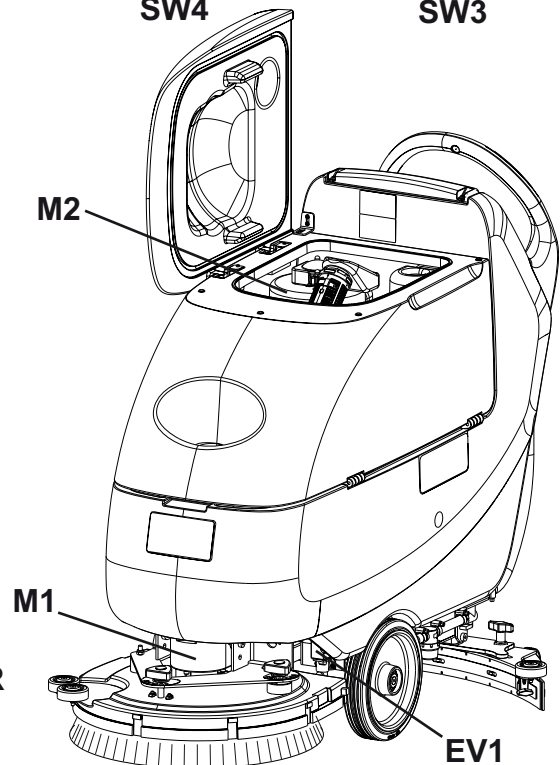
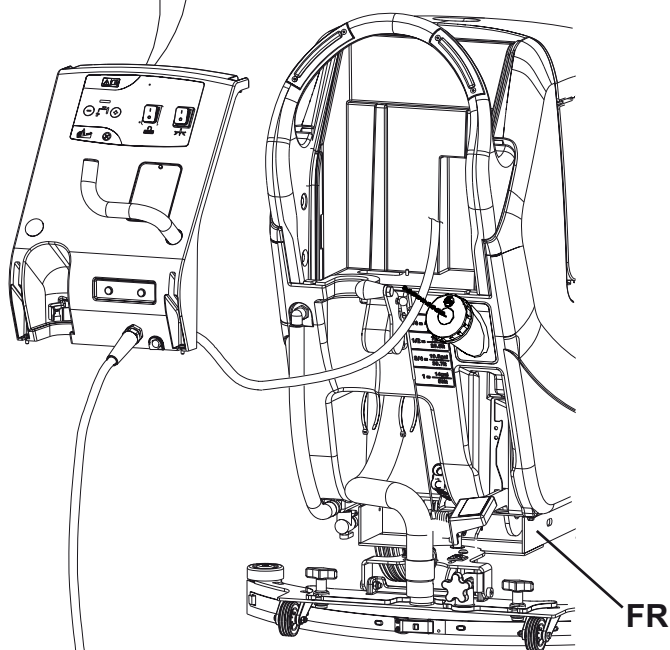
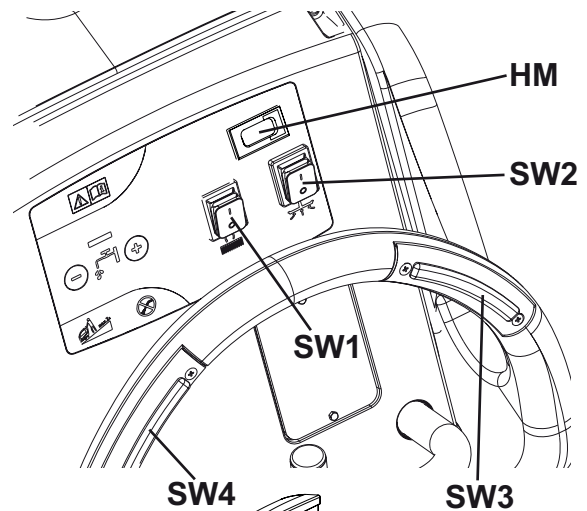
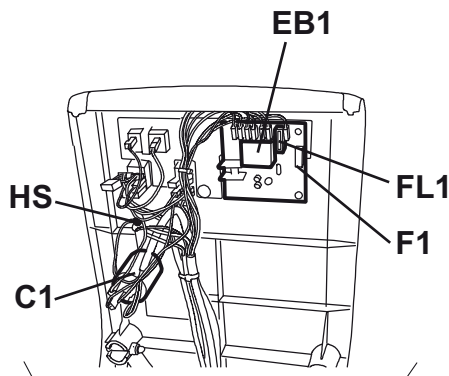
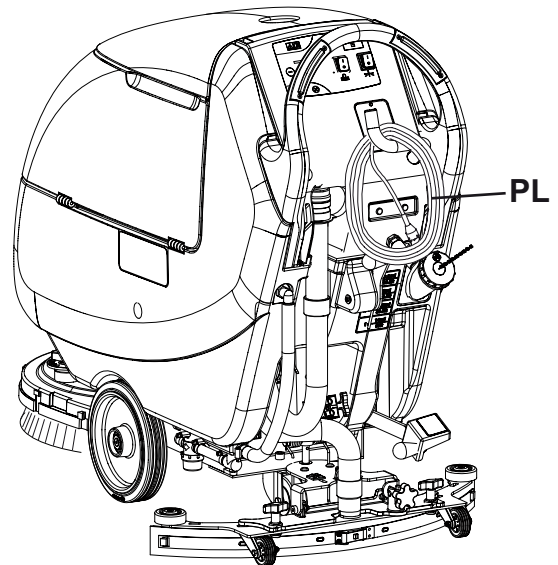
## COMPONENT LAYOUT (SCRUBTEC 545E, 553E, 653E)

## Key

C1	Suppression filter
EB1	Water flow electronic board
ES1	Brush motor relay
EV1	Water solenoid valve
F1	Electronic board fuse
FL1	Mains filter
FR	Machine frame
HM	Hour counter (optional)
HS	Grounding screw
M1	Brush/pad-holder motor
M2	Vacuum system motor
PL	Plug
SW1	Brush/pad-holder switch
SW2	Vacuum system switch
SW3	Brush/pad-holder switch on the right of the handlebar
SW4	Brush/pad-holder switch on the left of the handlebar



NOTE  
Figure showing 653E



## ELECTRICAL SYSTEM

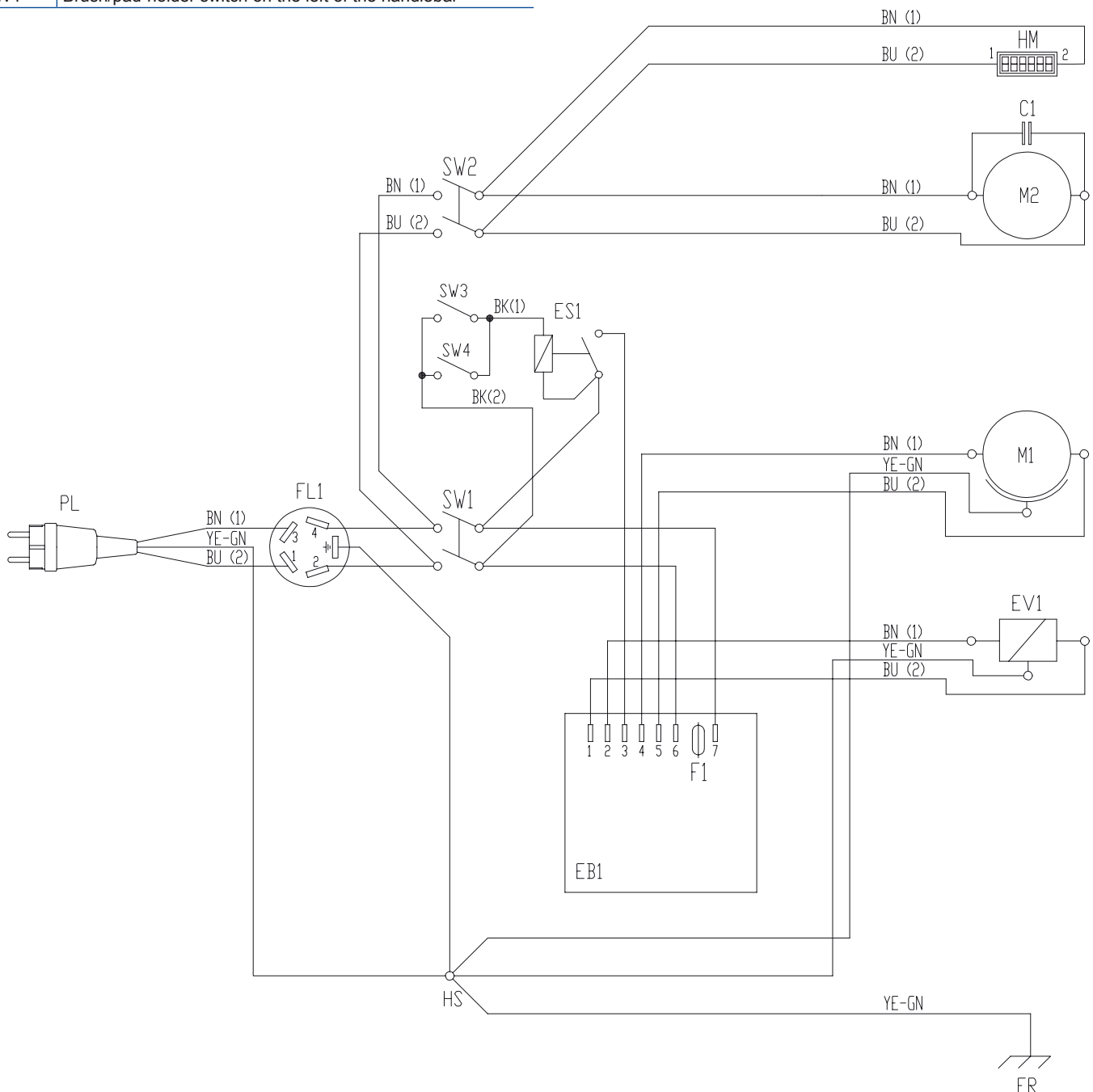
### WIRING DIAGRAM (SCRUBTEC 545E, 553E, 653E)

#### Key

C1	Suppression filter
EB1	Water flow electronic board
ES1	Brush motor relay
EV1	Water solenoid valve
F1	Electronic board fuse
FL1	Mains filter
FR	Machine frame
HM	Hour counter (optional)
HS	Grounding screw
M1	Brush/pad-holder motor
M2	Vacuum system motor
PL	Plug
SW1	Brush/pad-holder switch
SW2	Vacuum system switch
SW3	Brush/pad-holder switch on the right of the handlebar
SW4	Brush/pad-holder switch on the left of the handlebar

#### Colour codes

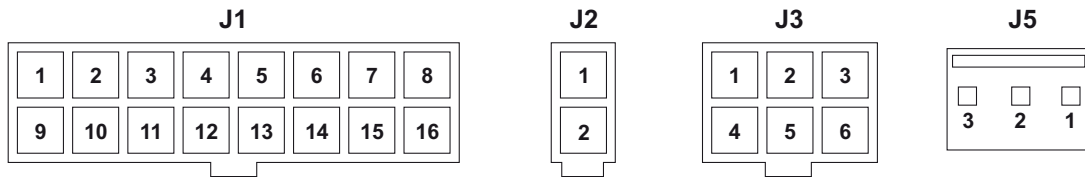
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P100126

## ELECTRICAL SYSTEM

## EB1 ELECTRONIC BOARD CONNECTOR PINS (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL)



S301581

## Electronic board for 545B, 553B, 653B

Supplier Ref.	Ref. Rev. Spec.
7CFBA600	Till S/N 072115094
7CFBA606	current version

## Electronic board for Scrubtec 545BL, 553BL, BOOST 5, 653BL, 651BCL, 661BL

Supplier Ref.	Ref. Rev. Spec.
7CFBA700	Till S/N 072014255
7CFBA702	current version

## CONNECTORS (on B side card)

## J1: MOLEX MINIFIT type 16 ways vertical

PIN	Description	Electronic board in/out	V ref.	Connected to
1	Electronic board power supply +	BOARD	24V always, with connected batteries	BAT
2	Ignition key circuit power supply	IN/OUT	24V always, with connected batteries	K1
3	Auxiliary signal power supply	OUT	24V always, with connected batteries	SW1 SW2
4	Hour counter power supply	OUT	0V with Vacuum function activated	HM
5	Drive system electronic board enabling	OUT	24V with key on "I"	EB2.J1.15
6	Return from ignition key	IN	24V with key on "I"	K1
7	-	-	-	-
8	Electronic board power supply -	IN	0V always, with connected batteries	BAT
9	Brush fuse voltage drop reading +	IN	0 ÷ 50mV nearly proportional to the current in brush motors	F1
10	Brush fuse voltage drop reading -	IN	0V always, with connected batteries	F1
11	Brush electromagnetic switch power supply -	OUT	0V with brush function activated	ES1
12	Vacuum system relay power supply -	OUT	0V with Vacuum function activated	ES2
13	Electromagnetic switch/relay power supply +	OUT	24V with key on "I"	ES1-ES2
14	Brush motor braking circuit	IN	24V with brush function deactivated	ES1.NC
15	Drive system/brush enabling (panel)	IN	24V with pressed paddle	SW1
16				-



## ELECTRICAL SYSTEM

### EB1 ELECTRONIC BOARD CONNECTOR PINS (SCRUBTEC 545B, 545BL, 553B, 553BL, BOOST 5, 653B, 653BL, 651BCL, 661BL) (continues)

#### J2: MOLEX MINIFIT type 2 ways vertical

PIN	Description	Electronic board in/out	V ref.	Connected to
1	Solenoid valve power supply +	OUT	24V with key on "I"	EV1
2	Solenoid valve power supply -	OUT	0V pulsed, according to water flow setting, only with paddle pressed and brush function activated	EV1

#### J3: MOLEX MINIFIT type 6 ways vertical (only version CFBA702)

PIN	Description	Electronic board in/out	V ref.	Connected to
1	Water pump power supply +	OUT	24V with key on "I"	M4 (only for CFBA706)
2	Water pump power supply -	OUT	0V pulsed, according to water flow setting, only with paddle pressed and brush function activated	M4 (only for CFBA706)
3	Solution pump power supply +	OUT	24V with key on "I"	M5
4	Solution pump power supply -	OUT	0V pulsed as J3.2, when active squared wave with different frequencies according to the setting solution flow	M5
5	B-type deck configuration return	IN	24V always with cylindrical brush deck installed	CSC.2
6	Auxiliary power supply +	OUT	24V with key on "I"	CSC.1

#### J5: SJT-VH type 3 ways vertical (only version CFBA702)

PIN	Description	Electronic board in/out	V ref.	Connected to
1	Potentiometer solution flow adjusting -	OUT	0V always, with connected batteries	RV3.1
2	Potentiometer solution flow adjusting outlet	IN	0-5V in accordance to the position of the potentiometer	RV3.2
3	Potentiometer solution flow adjusting +	OUT	5V with key on "I"	RV3.3





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